

# FLIGHT

*The*  
AIRCRAFT ENGINEER  
AND AIRSHIPS

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## DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1931

- July 4. T.M.A.C., 3rd Wing, Inaugural Meeting, Stag Lane Aerodrome.  
July 4-5. Norfolk and Norwich Ae.C. At Home, Mousehold Aerodrome.  
July 4-6-7. Cricket. R.A.F. v. Army at the Oval.  
July 8. Blackpool Air Pageant and Hanworth-Blackpool Race.  
July 10-12. R.A.F. Athletic Championships.  
July 10-19. Circuit of Italy.  
July 13-16. Lawn Tennis: R.A.F. Championships at Wimbledon.  
July 15. Opening of Roborough Aerodrome, Plymouth, by H.R.H. the Prince of Wales.  
July 15-16. Cricket. R.A.F. v. Civil Service at Uxbridge.  
July 18. Ramsgate Air Rally.  
July 18. Lincolnshire Ae.C. Air Pageant, Cleethorpes.  
July 18. T.M.A.C. Visit to Halton.  
July 22. Household Brigade Flying Club Meeting, Heston.  
July 25. King's Cup Race.  
July 25-30. Conference on Medical Utility of Aviation in the Colonies, at International Colonial Exhibition, Paris.  
July 25-Aug. 9. Rhon Gliding Competitions, Germany.  
July 27-28. Cricket. R.A.F. v. Free Foresters at Camberley.  
Aug. 1-2-3. Southdown Skysailing Club's Annual Flying Meeting.  
Aug. 3-4. Cricket. R.A.F. v. R.N. at Halton.  
Aug. 15. Scarborough Ae.C. Air Pageant.  
Aug. 15. Manchester-Liverpool Inter-City Race.  
Aug. 22. Newcastle-on-Tyne Meeting.  
Sept. 5. Norfolk and Norwich Ae.C. Display at Yarmouth.  
Sept. 5. Haldon Flying Meeting.  
Sept. 12. Schneider Trophy Contest.  
Sept. 26. Garden Party, Bristol and Wessex Ae.C.

## EDITORIAL COMMENT



ANOTHER Display has come and gone, and we are left with a charming memory of a delightful afternoon (and morning) under a bright blue sky, with every kind of fascinating spectacle spread out before our eyes. Satisfaction and pleasure are the feelings which we brought away with us from Hendon, and we feel assured that our sentiments are shared by the vast majority of the huge crowd that was present. It must of necessity be a slow business to get away after the show is over. Hendon shares that drawback with most other very popular events. Some are fortunate in having more roads leading to the place of amusement, but the Ministry of Transport can hardly be expected to make new roads to the aerodrome for the sake of one day in the year. The organisation of the Hampstead and Highgate Railway was very good, and those spectators who left by train had the better of the motorists. All the cars were clear of the ground in under two hours, but the congestion extended for a good long way down the roads. That seems to be inevitable. If it were not for the chance of rain, and the comfort of having a haven to which to retire for lunch and tea, a car would be a positive encumbrance at the Display.

We have heard complaints this year, as in previous years, about the catering arrangements. Catering at a large show like this is an art in itself, and it is not every firm which can make a success of it. We consider that the best thing to do is to carry one's own food and drink with one, and it does not need a car to do this. Sandwiches and thermos flasks are handy things. Still, everyone is not able to do this, and there ought to be good catering arrangements on the aerodrome. We cannot speak with personal experience of what those arrangements were like on Saturday, but we regret that some spectators seem to have had their pleasure marred by dissatisfaction in this respect. We have, however, some painful recollections of past years, before we had ourselves learnt wisdom.

We have also heard complaints that the supply of seats ran short. As an indication of the popularity of the Display, such a complaint has a gratifying side. But it will not do to let such a state of affairs go on. It really seems that more 10s. and 5s. seats are needed, and they ought to be supplied. A person who pays 10s. to see the show, and then finds that he has to walk about or stand for perhaps six hours, will naturally go away in a very disgruntled frame of mind. He has our sympathy, and we think he has a right to feel aggrieved. It would be very bad policy on the part of the Display Committee if they allowed a justifiable grievance to be possible in a second year. Some people would say that the charge for reserving a seat in a 5s. enclosure, namely, 2s. 6d., was pretty stiff. We are not desirous of cutting down the possible profits of the Display. The laws of supply and demand will operate; and if people clearly understand that 5s. may only give them standing room and that an assured seat is going to cost them 7s. 6d. in all, then it is for each person to decide whether he thinks the game worth the candle. At most entertainments the charge for admission includes a seat, unless it is clearly stated otherwise. A person who finds that this is not so at the Display only after he has paid his 5s., forms the opinion that there is something wrong, and that the arrangements are very far from what they ought to be. The Display Committee, like all other showmen, must realise that they cannot afford to let people go away dissatisfied. The programme set forth the conditions, but people do not buy programmes in advance.

It is pleasant to record that we have heard nothing but praise on all sides (and our own experience confirms the feeling) for the courtesy, efficiency, and general helpfulness of the officers and airmen of the Royal Air Force who were on duty at Hendon. We include in this appreciation certain civil officials of the Air Ministry who did yeoman service in their own section of the business. The duties of these officers and men were not always agreeable. Certain unreasonable spectators had to be dealt with, and that always calls for much tact, which was not lacking. When they had to deal with perfectly reasonable spectators who had a legitimate grievance, the position of the officers and airmen deserved even more sympathy, for they had to bear the blame for faults not of their own making. But they never failed, and in many cases they proved a present help in trouble.

As for the flying, we expressed our opinion on the programme in our last issue. It was well drawn up because it showed the public our latest types of service aeroplanes in some numbers. We saw three squadrons of "Bulldogs," two of "Harts," and one flight of "Furies," and we could hardly ask for more in that respect. We think that some improvement might have been brought about by allotting different time-limits to some of the events. The air combat between the "Gordon" and the three "Bulldogs" was a little too long. On the other hand, the five C.F.S. "Moths" and the three ex-

perimental types could have put up a more spectacular show if they had been allowed a little more time. At Croydon, on the occasion of the visit of the Dominion Premiers last year, the three experimental types were given ample time, and in consequence they gave one of the most attractive air displays which we can remember to have witnessed.

We regret that our suggestion made after the Display last year, namely, that events should be staged in front of the long side of the aerodrome, was not followed. The majority of the spectators must be on that side of the aerodrome, and they lose some of the effect when the events are staged so as to show to the best advantage to the south-eastern side of the aerodrome. The Royal Enclosure is not such a permanent affair that it could not be moved back to its original position on the south-west side. As things are, the zoom of the "Furies" carried them behind the backs of the majority of the crowd, many of whom had come with a special desire to see the performance of our new interceptor fighter. The aerobatics also suffer in the same way.

Once again the Display has been free from any sort of accident, and we believe that the special training for the Display this year has no tragic tale to tell. No engine failed while the squadrons were flying, and nothing worse happened than the supply of coloured smoke running short. May all future Displays be equally fortunate!



FLIGHT has never given its approval to "stunt" flights which do not advance the cause of serious air transport. That cause stands to lose so very much more than it stands to gain. The success of

**Flying** Messrs. Post and Gatty, if they suc-  
**Round the** ceed, as seems likely, will not prove  
**World** the commercial possibilities of an air route across the Atlantic—still less across the Behring sea. On the other hand, if they had failed, as so many stunt flyers have failed, they would have advertised aircraft in the least desirable way. As a stunt, however, the flight of Post and Gatty is most remarkable. Taking their success for granted (it is not complete at the time of writing), the flight invites comparison with the only previous occasion on which the world has been circled by aircraft. That was in 1924, when four U.S. Army "Douglas" biplanes set out. One crashed on a mountain while crossing the Behring sea. Another sank in the Atlantic. The other two got round. The "Liberty" engines were changed many times *en route*, and the greatest help was given to the flight by the U.S. Navy, without which there would have been at least one tragedy. The cost was enormous, and the only gain was propaganda for American air enterprise, which had scored 50 per cent. of success and 50 per cent. of failure. The present dash by one machine and one engine, with no change from wheels to floats, and no naval help, is by contrast an infinitely greater feat. We hope that it will not inspire other hot-heads to try to go one better.





# THE TWELFTH ROYAL AIR FORCE DISPLAY



THE luck of the Royal Air Force in the matter of good weather for the annual Hendon Display held last Saturday. Only once, in the very wet summer of 1922, has there been a really bad day for the Display. This summer has so far been mainly cool and damp, and week-end after week-end the weather forecasts of the Air Ministry have brought gloom to the hearts of holiday makers, which has grown deeper and deeper as the accuracy of the Meteorological Department has been justified by events. But on Friday last, just in the nick of time, the longed-for anticyclone extended its benign influence over the southern half of Great Britain, with the result that on Saturday the Display was held in a cloudless sky which would not have disgraced Italy. Nor did we have too much of a good thing. There have been years when the heat at Hendon grew almost torrid and eyes began to ache from looking up at a brazen sky. This year a gentle zephyr kept us all pleasantly refreshed, though it was not strong enough to keep the little Blériot aground, or to carry the parachutes too far across the aerodrome. In fact, no day could have been more perfect.

Their Majesties the King and Queen must have found it hard to decide which was the greatest attraction of the day. New Zealand was playing England at Lords, Great Britain was meeting many foreign champions at Wimbledon, and there was the Hendon Display. Their Majesties chose Wimbledon. In their place, H.R.H. the Duke of Gloucester flew to Stag Lane in a "Puss Moth," and drove on to Hendon. He took his place among some 160,000 other subjects of his father, not to speak of many foreign visitors, while many thousands more got an inexpensive view of the show from the fields surrounding the aerodrome. It is very noticeable how people now arrive early at Hendon. The first event started at noon, but there were quite a number of cars and a proportionate

number of people in their places before 11 a.m. Arrivals continued in an ever-growing stream up to 3 p.m., when the most important events began to take place. The traffic arrangements were excellent, better, in fact, than in any previous years. Special routes were assigned to cars bearing different labels. After the Display was over, all the thousands of cars had been cleared from the ground in less than two hours, which was quite good. Of the catering arrangements we cannot speak with first-hand knowledge. In some years they have been anything but perfect, but now all wise men (and the staff of FLIGHT are eminently wise men) bring their own provender with them and enjoy one of the jolliest possible of picnics.

The first event on the programme started at noon. It was a handicap race open to one officer from the Air Ministry and one from each Command Headquarters, and was for a cup presented by His Royal Highness the Duke of York. Last year this race was won by the Halton Command. Eight aircraft took part in the race, as follows:—The Air Ministry was represented by Flight-Lieutenant D. L. Blackford, who was flying a "Siskin" (Jaguar). Air Defence of Great Britain: Squadron-Leader R. S. Aitken, "Bulldog" (Jupiter). Coastal Area: Flight-Lieutenant M. V. Ward, "Flycatcher" (Jaguar). Fighting Area: Flying Officer E. H. Bellairs, "Fury" (Kestrel). Wessex Bombing Area: Flight-Lieutenant D. W. F. Bonham-Carter, "Atlas" (Jaguar). Inland Area: Wing-Commander G. H. Bowman, "Siskin" (Jaguar). Halton: Flight-Lieutenant C. D. Adams, "Siskin" (Jaguar). Cranwell: Squadron-Leader P. G. Scott, "Siskin" (Jaguar).

The race consisted of two circuits of a 14-mile course, and the machines started, in accordance with their handicaps, in the following order:—"Atlas," "Flycatcher," two "Siskins," two "Siskins," "Bulldog," "Fury." The

"Fury," which started scratch, was noticed to "dance" over the ground when the engine was first opened, but once it got properly going it got away extremely well, and at quite perceptible speed.

The circuit was flown in a right-hand direction, and when the machines came around the first time it was seen that the "Flycatcher" had drawn well ahead of the others and was catching up with the "Atlas." It was also noted that one of the "Siskins" was well ahead of the others, but it was impossible at the time to tell which of the four it was. Then came two more "Siskins," fairly close together, followed by a "Siskin" and the "Bulldog" flying neck and neck over the aerodrome.

For a time it looked as if the "Flycatcher" was going to win the race, but in the finish Squadron-Leader Aitken won the race for A.D.G.B. by sending his "Bulldog" across the line a little ahead of the "Flycatcher." Last year's winners, Halton, secured third place, with Flight-Lieutenant Adams on a "Siskin" (Jaguar). The handicapping was excellent, and the machines were well flown, as is shown by the fact that they were separated by a matter of seconds only. Flying Officer Bellairs dived the "Fury" over the railway embankment and came in at a terrific pace, but he just failed to catch up. In connection with the speed of the "Fury" it should be borne in mind that the Rolls-Royce "Kestrel" engine is supercharged, and that in consequence it cannot be opened to full power below some 11,000 ft.

#### Helping the Infantry

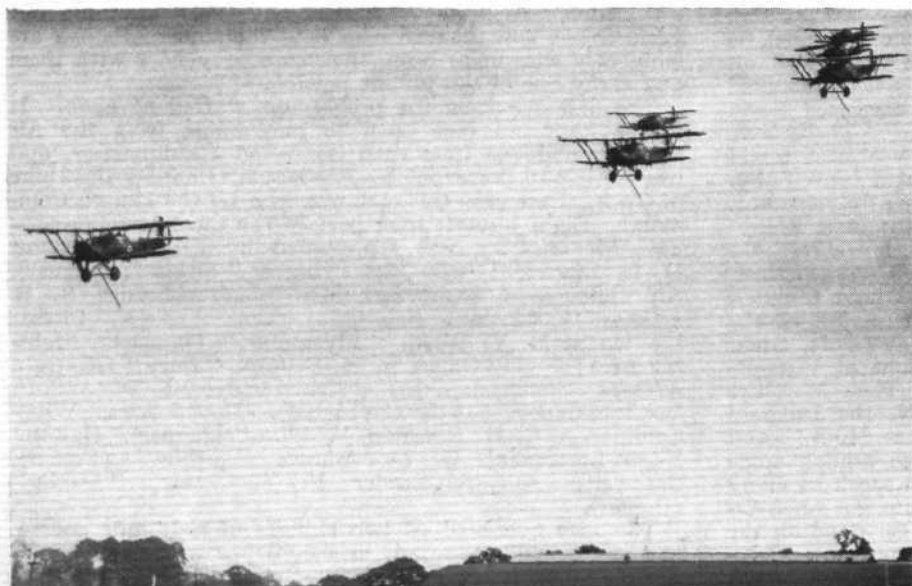
The programme was all the better for the omission of an artillery observation item, as the way in which to make this interesting to the spectators has not yet been discovered. But dropping supplies to the infantry and picking up messages from them is a function of the army co-operation squadrons, which is always fascinating to watch, and which calls for great skill in handling an aeroplane. No. 13 (Army Co-operation) Squadron from



"THAT'S THE STUFF TO GIVE THE TROOPS." NO. 13 (A.C.) SQUADRON DROPS SUPPLIES. (Flight Photo.)

Netheravon was selected this year to show how it ought to be done, and it had two flights present at Hendon. They commenced by dropping supplies. Thirsty spectators, seeing the poor foot-sloggers laying out signal strips in the middle of the parched aerodrome, exclaimed that they must be praying for beer. Along came the six "Atlas" machines in line astern, six pretty little red parachutes fluttered out, with a container hanging from each, and came to ground among the troops. The containers are designed

so that the end which hits the ground may collapse and take the shock, without damaging the precious contents in the upper part of the cylinder. The troops ran out eagerly and collected the containers, and we hope that they were pleased with the contents. Back came the "Atlas" machines and let out white parachutes with more containers. Evidently these did not contain beer, for the infantry were not satisfied. They gave up spreading strips, and instead tied messages to strings, which they suspended between upright posts. Their need was urgent, for they hung up six messages. Back came the Atlases, lowered the hooks from below the fuselage, and picked up the messages. But no more containers were forthcoming. Only written answers were dropped in re-



"WE WANT MORE BEER." THE "ATLAS" MACHINES WITH HOOKS DOWN TO PICK UP MESSAGES. (Flight Photo.)



sponse, which must have said that beer supplies had run out. The troops refused to believe it, and hung out more messages, but only got more written answers. Again and again the troops pleaded, and got nothing in response but written messages dropped with accuracy in their midst. Usually it is enough for a single aircraft to conduct this correspondence, but for the purposes of the Display whole flights were employed, possibly on the principle that "what I tell you three times is true."

#### Low Bombing by Virginias

Three "Virginias" of No. 7 (Bomber) Squadron gave a demonstration of low bombing with smoke bombs on a target marked by flags in the middle of the aerodrome. The night bombers flew in line astern at a height of about 800 feet. Looking from ground level, one could not see the limits of the target, which was speedily obscured by smoke. So far as could be judged, however, the shooting was as accurate as one would have expected it to be.

#### Air Combat

Event E, an Air Combat between three single-seater fighters and a single-engined day bomber, was the next event, and was presumably intended to represent what, in the view of the Air Staff, would be likely to happen in such a case. It is possible, of course, that the Display Committee may have asked for modifications, and so it is somewhat difficult to form any judgment on this point. At any rate, the air combat was between three Bristol "Bulldogs" (Jupiter) from No. 17 (Fighter) Squadron and a Fairey "Gordon" (Panther) from No. 40 (Bomber) Squadron. The "Bulldogs" were piloted by Flight-Lieutenant R. L. M. Barbour, Flying-Officer L. M. Hooper, and Sergeant-Pilot W. C. Maher, while the pilot of the "Gordon" was Flight-Lieutenant J. E. L. Drabble. The "Gordon" was painted a most hideous pink colour, but it did show up well against the blue sky.

It cannot truthfully be said that the demonstration was convincing. But one should be careful not to do injustice to the pilots, who may not have been left a free hand in choosing their manoeuvres. The method of attack appeared in general to be a left- or right-hand approach, terminating in a vertical or past-vertical bank to bring the "Gordon" in line with the guns, firing a burst while the single-seaters were in the vertical bank. All the "Gordon" pilot had to do, and what he mostly did appear to do, was to kick his rudder slightly to give his gunner a chance. It was not surprising that two of the "Bulldogs" were "shot down in flames" quite early in the proceedings. But it was something of a surprise to see the "Gordon" suddenly begin to emit smoke. The remaining "Bulldog" did not, from the ground, appear to get into any position from which it might reasonably have

bagged the bomber without getting itself hit. The upward zoom from below, in which the rear gunner of the bomber cannot defend himself, did not appear to be much used by the "Bulldogs," nor did the dive from behind and above, in which the single-seater pilot uses his engine as a shield.

If the combat was tactically unconvincing, it was spectacularly satisfying, the "bursting into flames" of one "Bulldog" almost immediately after the beginning of the fight giving the spectators at once the idea that "something was happening." And when, not very long afterwards, another "Bulldog" began to emit smoke, to be followed in a few minutes by the "Gordon," many onlookers were obviously impressed.

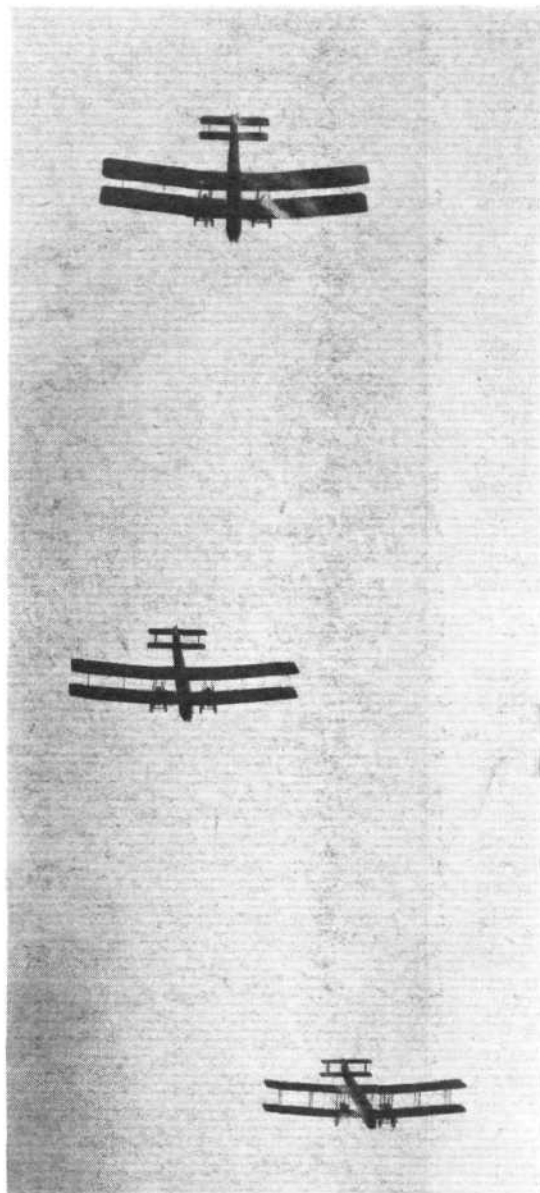
#### Refuelling in the Air

Refuelling in mid-air, the next event, was interesting if not particularly spectacular, but it demonstrated a phase in the development of aeronautics which may enable flying boats to take off light and fill their tanks when in the air. The demonstration was carried out by two Vickers "Virginias" from the Royal Aircraft Establishment. First of all, one of the "Virginias"—the "refueller"—flew past the enclosures displaying the pipe line, about 200 feet long, hanging down from the fuselage.

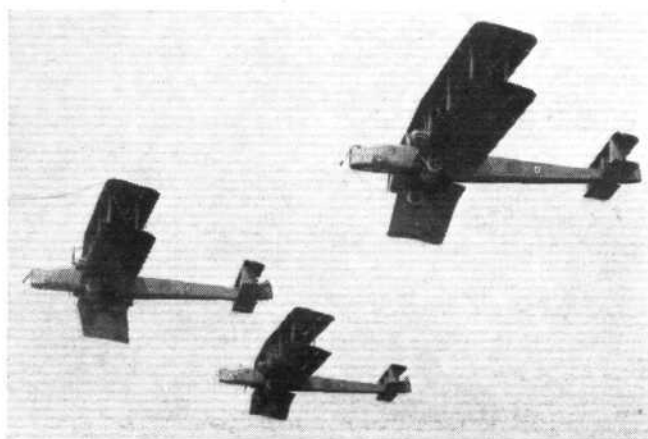
The curve taken by the pipe line, incidentally, was rather peculiar—it trailed out rearwards from the fuselage at about 30 deg. for about two-thirds of its length, then the rest of the pipe curved sharply downwards, forming a kind of hook. However, the pipe having been displayed, the two machines manoeuvred into position, the first "Virginia" about 150 feet above the second—the "refuellee"—and to the rear of it. The upper machine slowly overtook the lower, until a man in the tail cockpit of the lower "Virginia" was able to grasp the pipe line, which he proceeded to haul in and screw the nozzle into the fitting communicating with the fuel tanks. Having made the connection the two machines flew at equal speed and maintaining their respective heights, until the tanks were replenished—which on Saturday was accomplished, specially for the occasion, in the remarkable time of about two minutes! The pipe, it may be mentioned, is fitted with a cock which is automatically closed if contact between the two aircraft is broken.

#### Converging Bombing

It was next the turn of the Fleet Air Arm, which showed its ability to take land action. An encampment of four white tents had been observed, and it had evidently aroused the wrath of H.M.S. *Courageous*, which sent No. 407 (Fleet Fighter) Flight to obliterate it. The five "Flycatcher" Fighters appeared suddenly in V formation and dived



THE "VIRGINIAS" DROP SMOKE BOMBS.  
(Flight Photo.)



NO. 7 (BOMBER) SQUADRON OUT FOR BLOOD. (Flight Photo.)

wrathfully upon the innocent-looking bell tents. After giving them a preliminary burst of combined fire, the flight formed a circle up above, from which one "Flycatcher" was always diving on to the camp. As it zoomed up, exposing its tail to ground gunners, another machine from a different part of the circle would come down with its guns snapping out blank. One could never tell from which direction the next attack would come, and the ground gunners must have been equally at sea. Such an attack is very difficult to counter, but it must take infinite practice and understanding between the pilots to work it up to such a stage of perfection as it reached on Saturday. The pilots handled their "Flycatchers" in great style, and everyone gave them full marks. After a while the flight took to hand bombs in place of machine guns, and soon two of the tents were blazing so merrily that the fire brigade had to work hard to beat out the fire in the grass.

### Big Game Hunting

The next event was an entirely new one for the R.A.F. Display, and was, we think, much appreciated by the spectators. We were informed that a number of fierce animals had escaped from a Zoo and, following present day custom, had taken to the air. As it was feared that the animals might be a danger to the public, the well-known big-game shot, Squadron-Leader P. Huskinson, M.C., was sent off in pursuit in a Fairey 111F piloted by Flight-Lieutenant J. G. D. Armour.

The first monster, which took off backwards in order to make certain when it had left the ground, was a "Porker Fledgehog," which was soon spotted and potted by the gallant Squadron-Leader. To a lover of animals it was somewhat pathetic to see the way in which the "Porker" faced its opponent all the time the latter circled round. However, after several discharges from the 12-bore shot gun, the "Porker" breathed its last (hydrogen), and came to earth in a snout-dive.

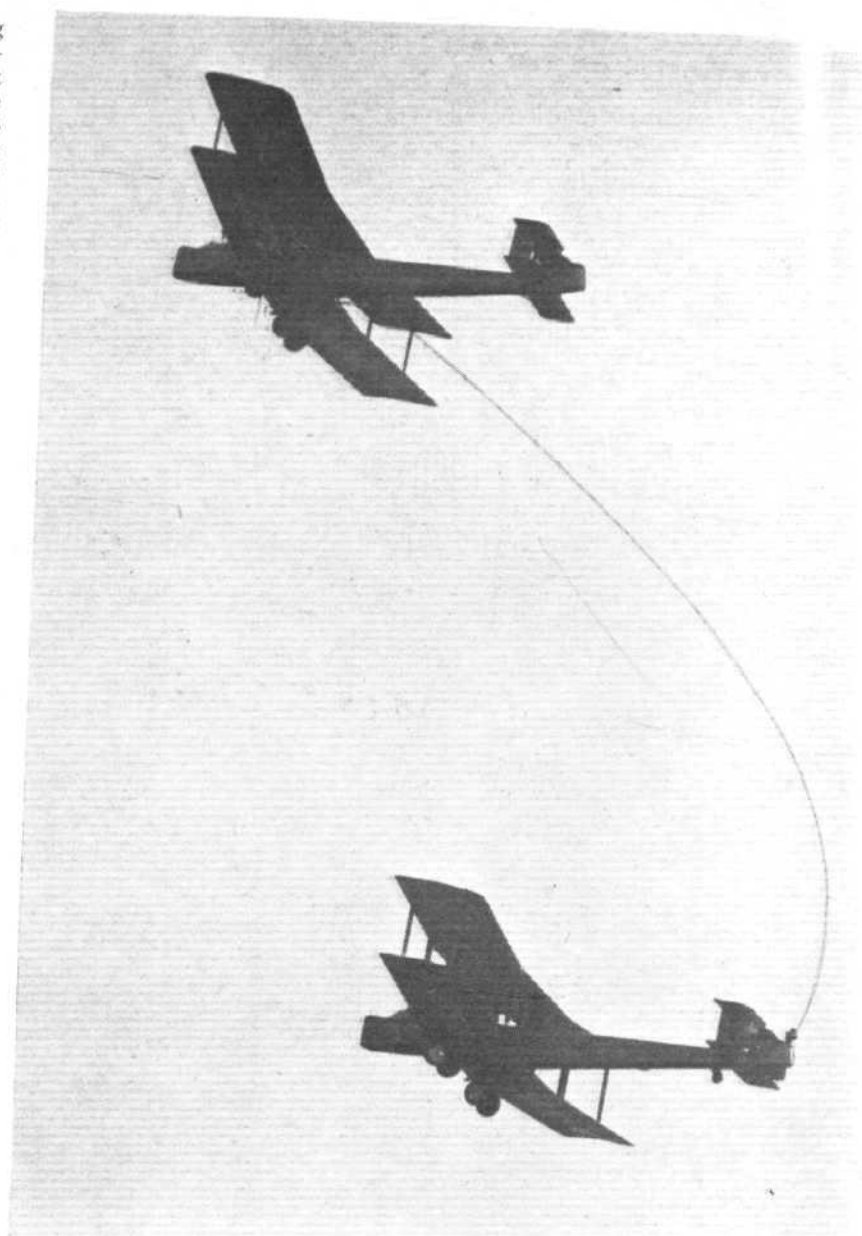
A "Soft Roe Floppity," which appeared next, was dispatched with equal rapidity—the first shot resulting in an immediate displacement aft of the animal's centre of gravity. As this monster was heading, tail first, for Hendon graveyard, an "Avery Gamecock" ("high" altitude species) hove into view, and once again the 111F was hot on its t(r)ail. A few lucky shots, however, sent it to an early and final roost. The next, and last, monster, a "Wurzel-Owl," provided a little more sport, its hunter, apparently, experiencing a difficulty, to wit, to shoot the hooter. It managed to get well up and appeared to take root in the sky, for it was some time before it finally came to earth.

### Individual Aerobatics

The last of the preliminary events was a demonstration of individual aerobatics by two Gloster "Gamecocks" (Jupiter) of No. 23 (Fighter) Squadron, piloted by Flight-Lieutenant H. M. Day and Pilot-Officer D. R. S. Bader.

The two machines took off some little while before they were due to "appear," and while cruising around in the distance they were seen to kill time by doing a beautiful loop, wing to wing. The "Gamecocks" made their entry by a dive side by side, finishing with a perfectly executed large loop. Next came a half-roll, the machines starting one from each side of the aerodrome and flying towards each other.

The general principle followed was that one machine should, so to speak, be the "mirror image" of the other, i.e., every manoeuvre made by one machine was duplicated by the other from the opposite side. The show was extremely effective, and the timing was good, i.e., the "mirror image" never lagged behind. Fortunately, the "Gamecock" never met its "image" in the plane of the



REFUELLING IN MID-AIR. TWO "VIRGINIAS" GIVING A DEMONSTRATION OF REFUELLING IN THE AIR: THE TOP MACHINE HAS JUST MADE CONTACT WITH THE LOWER. THE MAN IN THE TAIL COCKPIT HAVING SECURED THE END OF THE PIPE-LINE. (Flight Photo.)

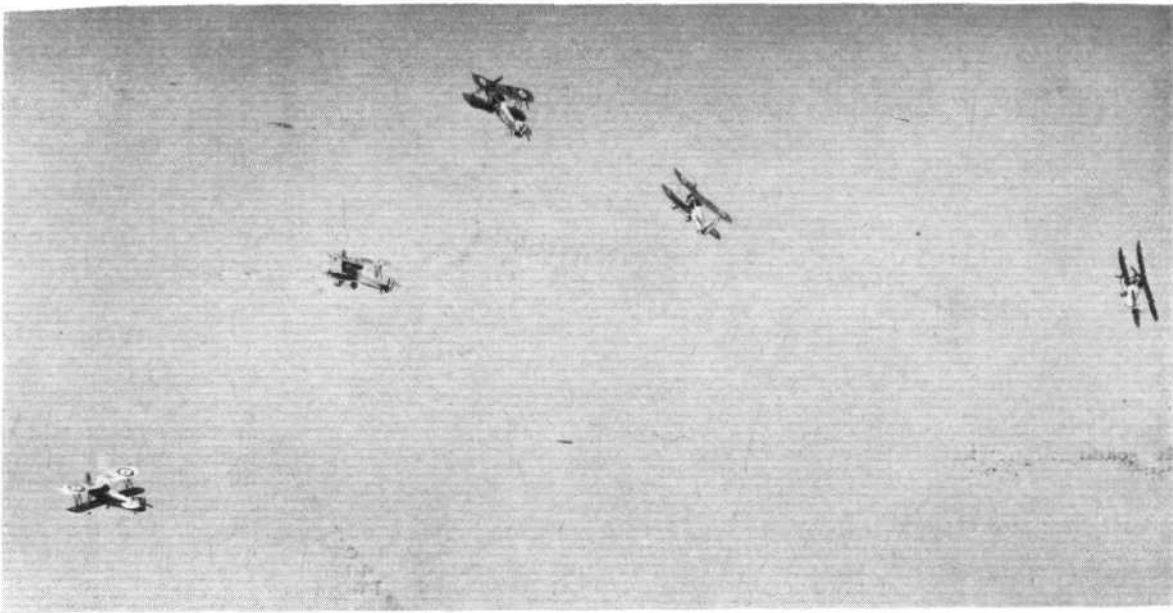
"mirror," but when the two machines approached each other either in a roll or in some other manoeuvre, the distance between them was small enough to maintain the illusion of the mirror, at least until the two machines met and passed "through the looking glass."

The evolutions carried out included diving, zoom and half-roll, loop and spinning off the top of the loop, zoom followed by two turns of an upward spin. The evolutions concluded with a loop and Immelmann turn to get the two machines wing to wing again, with which they made their exit. Altogether the demonstration was very pretty, and the two pilots showed great skill and judgment of speed and distance.

### The Afternoon Programme

By 3 p.m. nearly everyone who was coming to Hendon had come, and the crowd was at its thickest. Even those who had been there all the morning, to say nothing of the new-comers, were startled by the take off of six squadrons one after the other. First went three fighter squadrons in "Bulldogs," Nos. 3, 54 and 17, followed by three day bomber squadrons of the Auxiliary Air Force in "Wapitis," the City of London, the County of London, and the County of Middlesex. Some spectators, notably a fair visitor from America who was near the present writer, made no secret of "wind up" as nine "Jupiter" engines thundered over their heads. What would happen if an engine failed in such a take-off? Presumably the inertia of the "Bulldog" would carry it clear of the aerodrome limits, and of course the people outside who have





THE FLEET FIGHTERS BREAK FORMATION. (Flight Photo.)

not paid for admission do not matter. Anyway, all six squadrons speedily vanished from sight, as squadrons have an uncanny power of doing at Hendon, cloudless though the sky may be.

#### Crazy Flying

This year's Crazy Flying (Event No. 2 on the Programme) indicated, we regret to say, a marked improvement in the sanity of the performers. Perhaps the latter had been instructed not to adopt the straight-waistcoat methods of Noakes and Fogarty, for it must be admitted we missed the weird antics presented on previous occasions by these two.

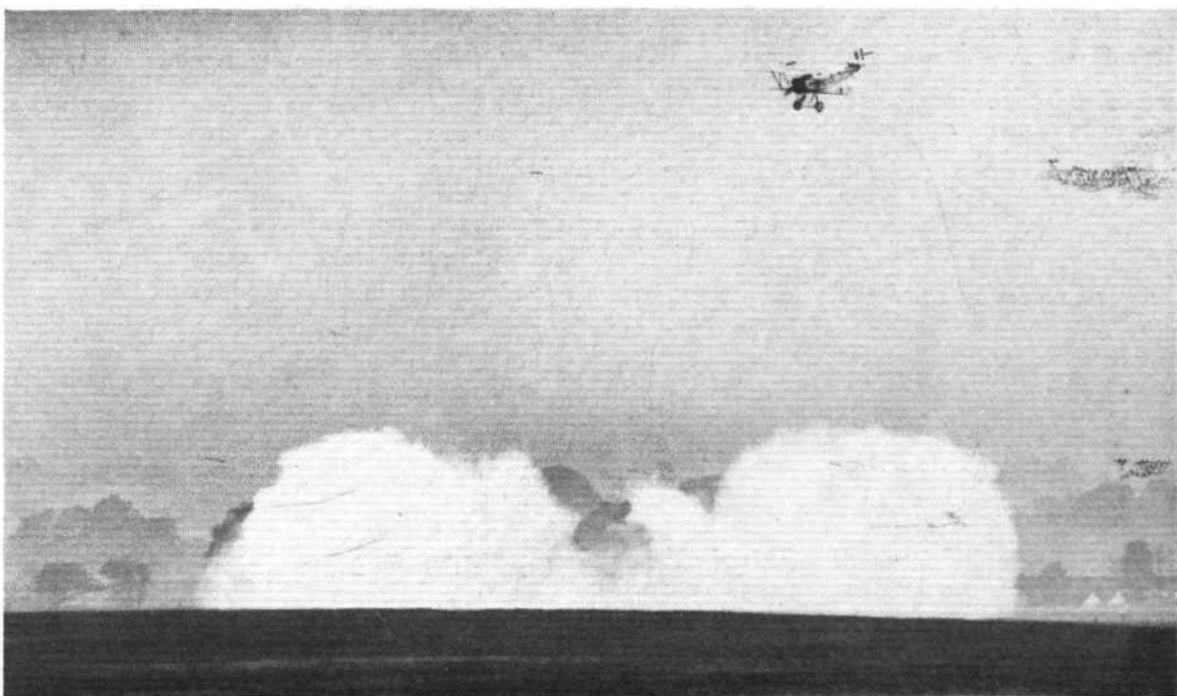
By this we do not mean that Flight-Lieutenant S. K. Damant, D.F.C., and Flying-Officer J. Beaumont, Instructors from No. 5 Flying Training School, did not put up a good show on the two Avro-Lynx machines. What they did do they did remarkably well, but we felt that this time there was not sufficient variety in the "spasms" presented compared with previous crazy displays.

However, both pilots took their Avros round the 'drome in almost every position except upside down and backwards—occasionally giving vent to a shriek on a siren—and then they would amble across side-by-side, side-stepping,

finally flying past the enclosures in wobble-in-line-astern formation.

#### The Fighter Wing

When the "Avros" crazed no more, a booming in the sky turned our eyes upwards once again. We were all accomplished rubber-necks by this time. A spectacle of beautiful grandeur met our expectant gaze as the three "Bulldog" squadrons came back in wing formation, a triangle of three squadrons, each squadron a triangle of flights, and each flight a triangle of aeroplanes. No. 3 with its green bands down the fuselage led the formation, with the yellow bands of No. 54 on the right rear and the black zig-zags of No. 17 on the left. The formation was excellent. Then the Wing broke up and the squadrons turned off to different quarters of the compass. They approached the aerodrome from different directions, and should have crossed in the centre. It is a manoeuvre which needs long practice, and on Saturday the time was not judged quite perfectly. The first time No. 17 was a trifle late. Then they flew inwards once again, but, to vary the proceedings, as they met No. 17 went up in a "Prince of Wales' Feathers," and flew back the way they had come at a higher level.

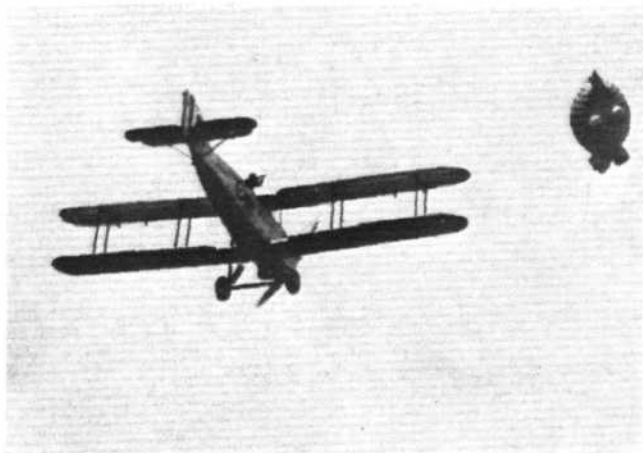


A "FLYCATHER" BOMBS THE CAMP. (Flight Photo.)

Next time, Nos. 54 and 17 flew in line abreast of each other, while No. 3 met them, but rather behind the front rows of the spectators. The squadrons changed smartly to V formation. They then crossed the aerodrome in squadrons line astern, but each in a different formation. No. 17 led in flights astern, but each flight in line abreast; No. 54 had all nine machines abreast, while No. 3 kept its flights in V, but each flight had its machines abreast. Finally the whole Wing formed "flights astern," and each flight in succession dived in salute before the Royal Box. It was a most impressive manœuvre, and well carried out. This was the first occasion on which a Hendon crowd has had a chance of seeing the "Bulldog" in any numbers, and the sight repaid the wait.

#### The Auxiliaries

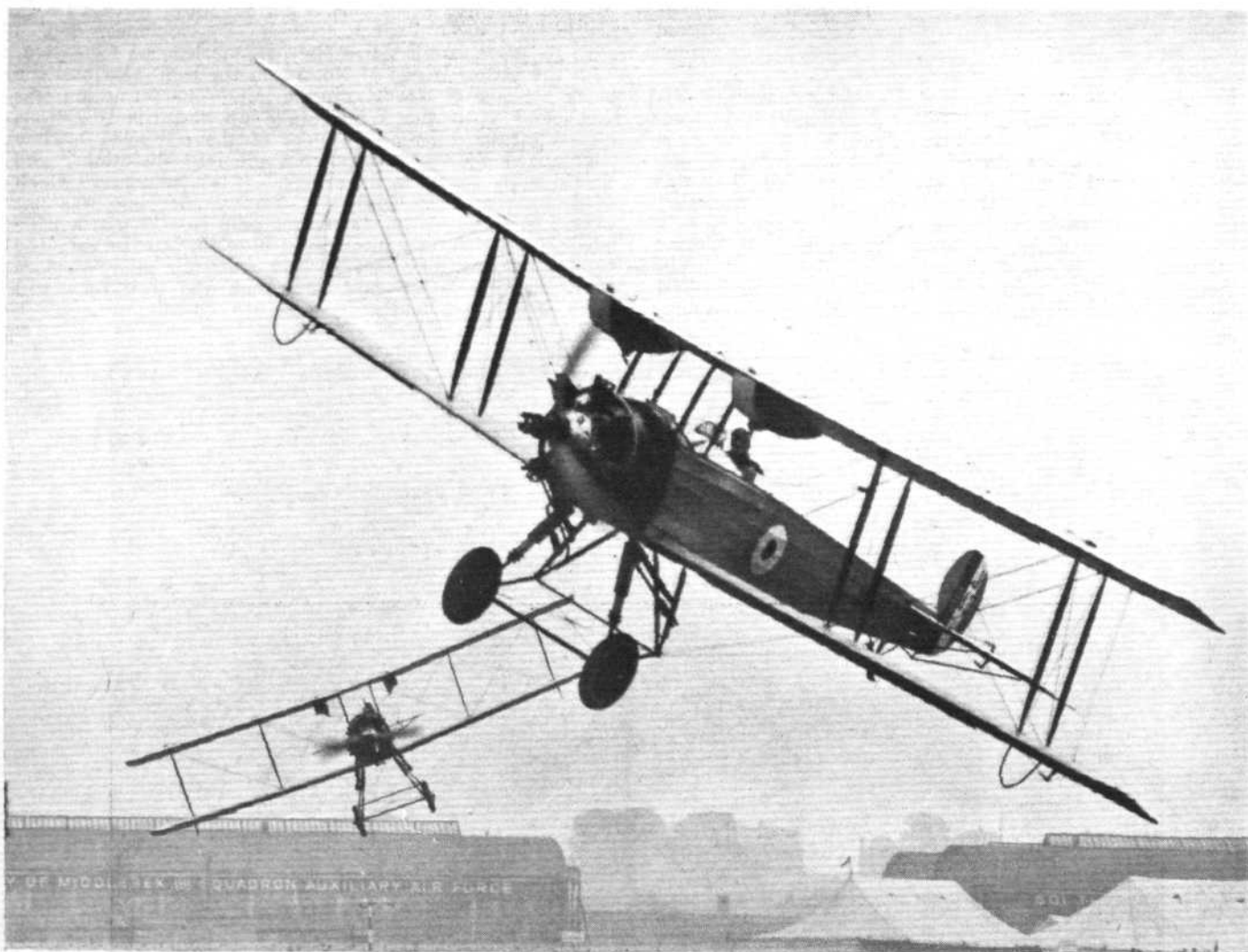
As the 27 "Bulldogs" left the stage clear, the three squadrons of "Wapitis" made their entrance. They, too, came over in Wing formation. In former years we have seen single squadrons of the Auxiliary Air Force



**BIG GAME HUNTING FROM THE AIR. HERE WE SEE THE HUNTER, IN A FAIREY III F, TAKING A SHOT AT THE SOFT ROE FLOPPITY—ONE OF SEVERAL FIERCE AND WEIRD MONSTERS WHICH "ESCAPED" FROM A LOCAL ZOO. (FLIGHT Photo.)**

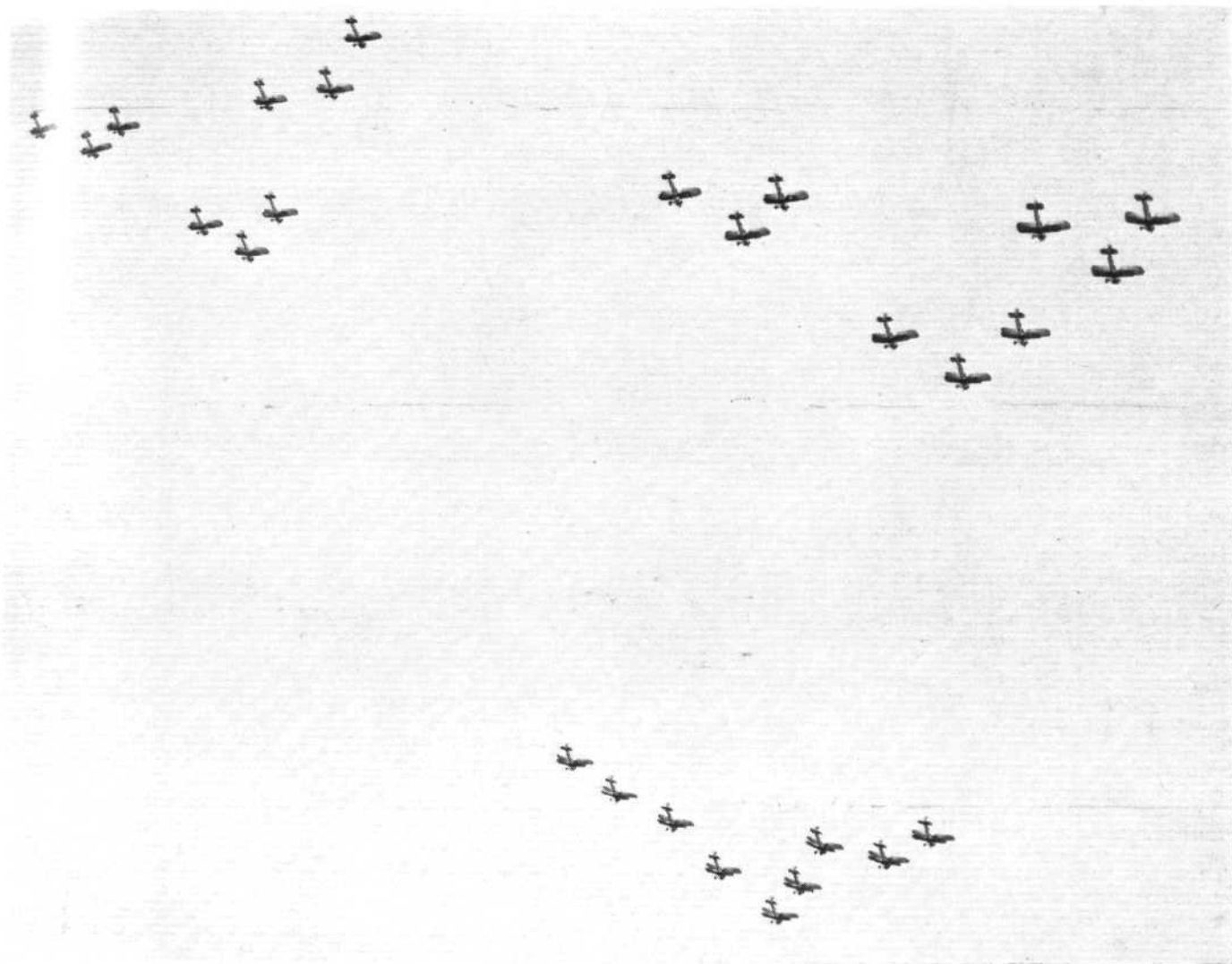
manœuvre at Hendon with great credit to themselves. Never before has a whole Wing of them worked together at a Display. Moreover the County of Middlesex is a very young squadron, and it would not have been surprising if the formation had straggled a bit in places. We were prepared to excuse such little laches. Citizen airmen give their services to the country free, gratis, and for nothing, and it is churlish to look a gift horse in the mouth. At the same time, we scrutinised the formation with a very critical eye, to estimate how far our editorial good nature would have to be stretched. There was not the least cause for any excuse-making. There was literally nothing to excuse, or to criticise in

our own minds. The formation of each squadron and of the whole Wing was as good as it well could be. The pick of the regular Royal Air Force was at Hendon, and was putting up a really remarkable show; yet here was the Auxiliary Air Force inviting comparisons, showing no fear and asking no favour, and emerging from the ordeal with nothing but credit.



**CRAZY FLYING: FLT. LT. DAMANT AND F.O. BEAUMONT INDULGE IN A LITTLE SIDE-STEPPING. (FLIGHT Photo.)**



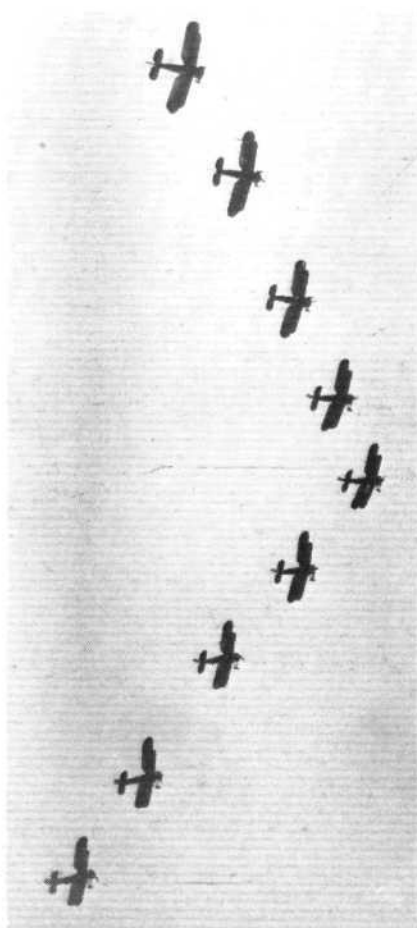


#### How to land

As the "Wapitis" passed off the stage, No. 54 (Fighter) Squadron brought our eyes down to earth again by landing in squadron formation. An aeroplane never lands without exciting a little interest, even in case-hardened spectators, but the landing of a whole squadron of speedy fighters in formation is a spectacular event. Hendon is not exactly a billiard table aerodrome, and one or two of the "Bulldogs" did not exactly stick at first contact with the sun-baked turf, but all nine kept their place faultlessly in the formation. It was an exhibition to admire.

#### Research

In one of his very interesting series of articles in *The Aircraft Engineer* (Monthly Technical Supplement to *FLIGHT*) some years ago, Mr. J. D. North wrote: "We have heard a great deal about 'unorientated' and 'ad hoc' research. The former term is, I think, unfortunate, being too nearly a Latinised form of 'aimless,' which this class of research too easily becomes." The R.A.F. Display Committee had chosen to refer to the flight of three experimental types as "A Demonstration of Research Types." One would dislike having to classify the Handley Page "Gugnunc," the Cierva "Autogiro," and the Hill-Westland "Pterodactyl." They are certainly far from "aimless," but, on the other hand, it is, perhaps, open to doubt whether the objects aimed at are definite enough to apply to the



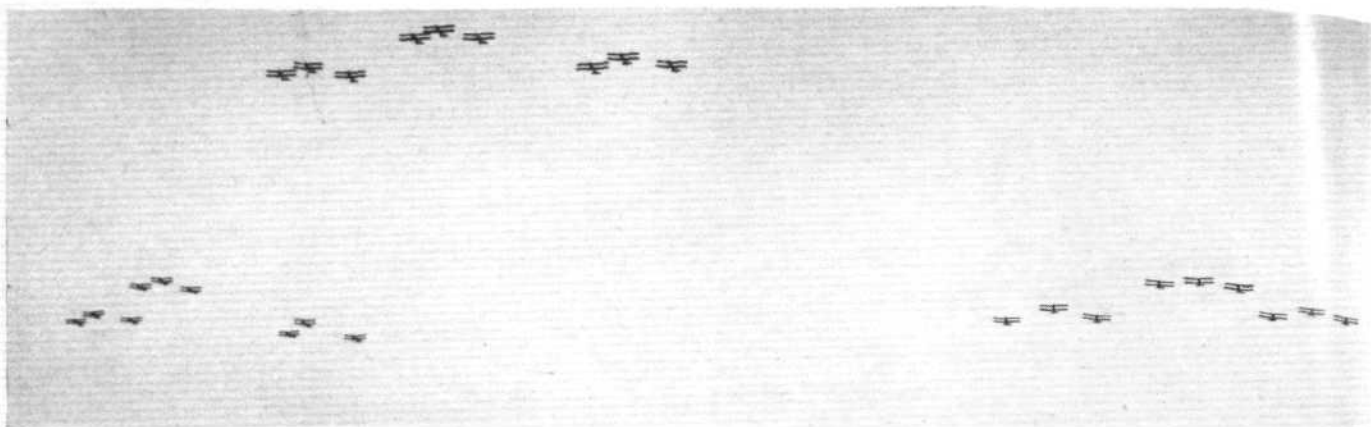
THE "BULLDOGS" SHOW THEIR TEETH. A WING OF NOS. 3, 17, AND 54 (FIGHTER) SQUADRONS. THE LEADING SQUADRON IS CHANGING FORMATION. BELOW IS ONE SQUADRON IN A V. (FLIGHT Photos.)

three machines the term "ad hoc" research.

The Handley Page, for example, was designed specifically for the Guggenheim Safety Competition, and *not* primarily as a link in the research into ways and means of avoiding the stall, although it does achieve that purpose in a manner entirely its own.

The "Autogiro" and the "Pterodactyl," on the other hand, both have the avoidance of the stall and spin as their primary object, approaching the subject from entirely different angles.

It cannot truthfully be said that at Saturday's demonstration at Hendon the latter two types were over well "shown off." The "Gugnunc," however, was handled in masterly fashion by Flying-Officer H. H. Leech. The manner in which the Handley Page machine "hung on its slots" was a revelation. But a much more convincing demonstration would be



THE AUXILIARY AIR FORCE: A Bomber Wing composed of the City of London, County of London and County of Middlesex Squadrons, all flying "Wapitis." (Flight Photo.)

provided by handing the machine over to an indifferent pilot. The result might be very different. This is not meant in any way as a criticism of the "Gugnunc." The machine was designed to win a competition, and to be flown in that competition by a pilot who was a master at getting the best possible out of it.

The "Autogiro" was flown very "mildly," and it may have been the direction of the wind (blowing from the enclosures towards the aerodrome) which prevented one from getting a really good view of the slow descent of the machine. Through having to fly towards the enclosures instead of parallel with them, one lost that sense of slow forward speed which is experienced when the machine is seen from the side.

In watching the "Pterodactyl" one had the feeling that the pilot had not had sufficient time on the machine before the Display to become thoroughly familiar with it. Thus the very steep descent with the machine nearly horizontal, as shown at an earlier Display with the original "Pterodactyl" was not observed. The fact that the wing tip "controllers" have disappeared may have been partly responsible. In the original machine these "controllers" could be seen trailing upwards when the machine was making a "stalled" descent, and at once indicated what was happening. In the latest type it is more difficult to follow.

Flight-Lieutenant White provided some of the more observing onlookers with some amusement while he was waiting at the far side of the aerodrome before taking off. The door of the cabin of the "Pterodactyl" was seen to be flapping merrily, but whether this was done to cool the pusher engine or to ventilate the cabin was not quite clear.

#### The Inverted Moths

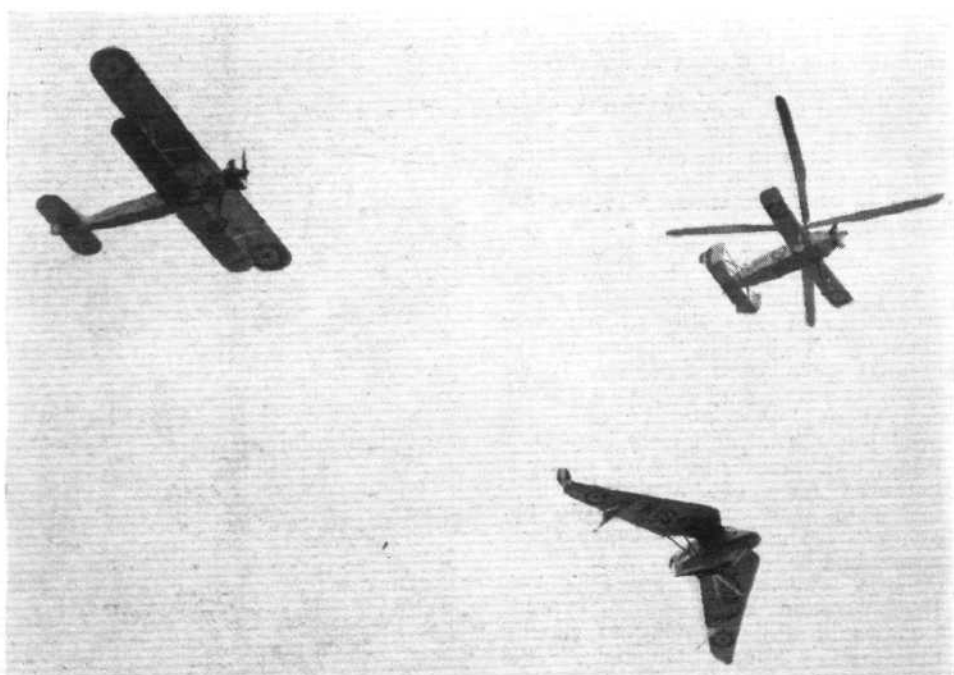
The quaint trio had hardly passed off when five "Moths," with partly-coloured red upper wings, were observed approaching the aerodrome from goodness knows where. As they came they went up to the top of a loop and half-rolled over on to their backs in a nonchalant sort of way, and flew down to the foot-lights on their backs. It seemed rather a disrespectful way in which to approach the great British public. Then, turning right way up again for a brief space, they formed a circle, and immediately stood on their heads once again. They gave the impression that they had forgotten which was really the right way up for a Moth and a C.F.S. instructor, so they kept on trying both ways, and still could not quite make up their minds. But for the red on top of the wings the spectator could hardly tell which way up they were. On the whole, the heels-over-head

position seemed to come more natural and comfortable to them. At least that evidently was the conclusion arrived at by the leader, Flight-Lieutenant Embry, for he finally adopted the head-down position, though the others followed him in perfect V formation with their heads uppermost. The leader was proved right. Streams of hot air were rising irregularly from the aerodrome, and were making a fine series of bumps, to which the four following Moths duly responded. But an inverted Moth does not feel bumps, and Embry flew steadily and sedately through them, while his following oscillated gently up and down. It is rumoured that a tyrannous Air Ministry forbids a pilot to fly upside down for more than five minutes, which is distinctly hard luck on those pilots who want to escape air-sickness by adopting this position.

This polished exhibition came to an end all too soon. The crowd could have done with more of it, and so, apparently, could the C.F.S. instructors.

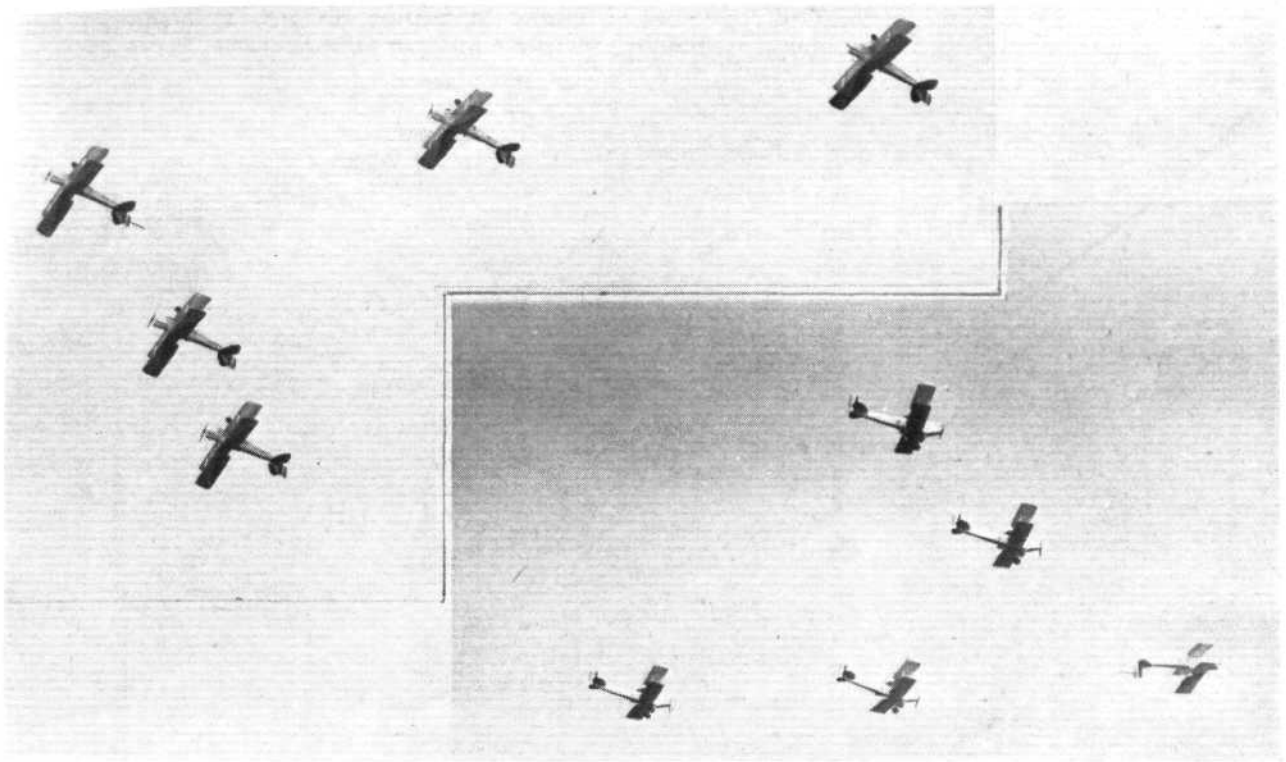
#### No. 204 (Flying Boat) Squadron

No one could accuse the Display Committee of not ringing the changes in a striking manner. From a Moth to a "Southampton" is quite a big jump. In a recent issue of FLIGHT a photograph taken off the Devon coast showed how well No. 204 (Flying Boat) Squadron can keep formation, and now some 200,000 of the public were able to note that fact for themselves. The three Southamptons arrived in V formation, and then flew back at a low altitude in line astern. This gave people a chance of grasping the fact that they really had no landing wheels.



EXPERIMENTAL RESEARCH: THE HANDLEY PAGE "GUGNUNC," THE CIERVA "AUTOGIRO," AND THE HILL-WESTLAND "PTERODACTYL" IN FLIGHT FORMATION. RIGHT-HAND CIRCUITS WERE MADE SO THAT THE "GUGNUNC" COULD "MARK TIME" WHILE THE "PTERODACTYL" WENT FULL SPEED. (Flight Photo.)





THIS SIDE UP WITH CARE. "MOTHS" OF THE CENTRAL FLYING SCHOOL. (Flight Photo.)

and simply could not have come down anywhere round about without doing some damage. But their "Lions" were reliable, and they flew off to their watery haunts without causing us any anxiety.

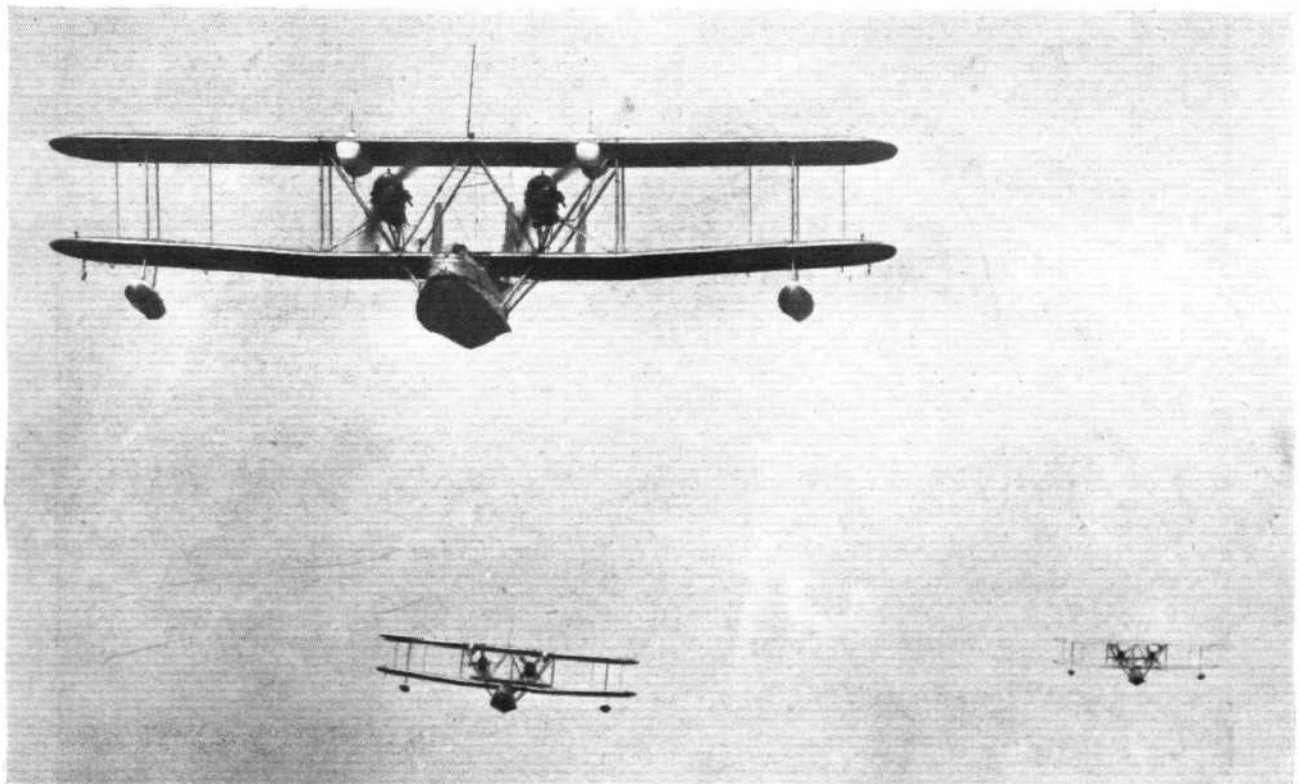
#### The "Furies"

It is fairly safe to assume that not a small proportion of those who visited Hendon on Saturday last did so very largely in order to get a good view of the Hawker "Fury" (Kestrel) interceptor fighters, which have but recently been delivered to No. 43 (Fighter) Squadron, and which have, therefore, not appeared in public before.

During the morning one "Fury" had taken part in the Headquarters Race, but it was the demonstration of

Flight Aerobatics to which visitors were looking forward. This was given by Flight-Lieutenant E. T. Carpenter and Sergeant-Pilots S. F. King and A. F. Underhill, of No. 43 (Fighter) Squadron, Tangmere.

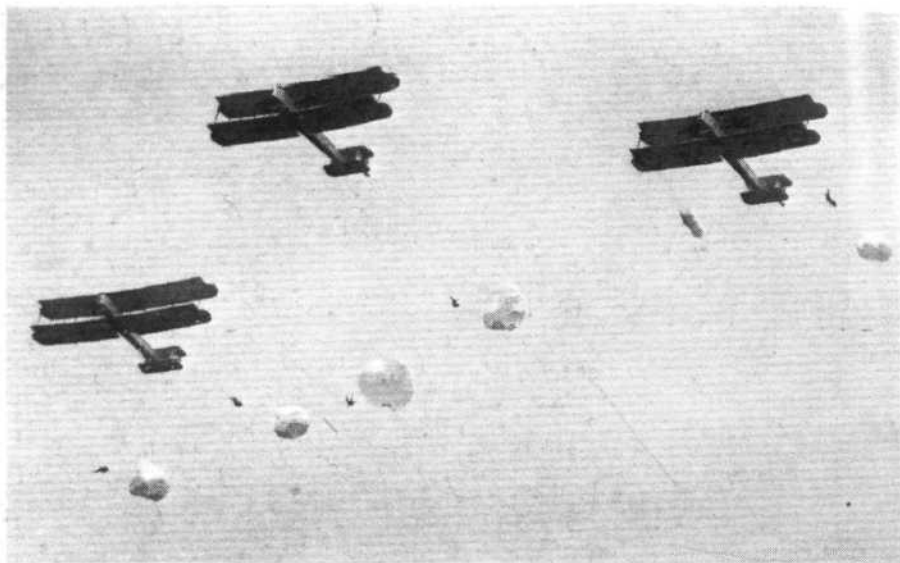
The three "Furies" arrived in flight formation, diving over the aerodrome and zooming. They were certainly fast, but it may, perhaps, be doubted that they attained the 250 m.p.h. in the dive which the loud-speakers announced. The Rolls-Royce "Kestrel" engine is supercharged, and does not, therefore, give full power at ground level. We understand that at the Display "doped" fuel was not used, and consequently there was no artificial "boosting" of speed near the ground, such as may be attained (the engine maker willing) by a special fuel of



"PER MARE, PER TERRAM." THE "SOUTHAMPTONS" OF NO. 204 (FLYING BOAT) SQUADRON ARE NOT IN THE LEAST AFRAID TO FLY ACROSS LAND. (Flight Photo.)



THE "FURIES": THREE MACHINES OF NO. 43 (FIGHTER) SQUADRON COMING OUT OF A LOOP IN LINE ASTERN. (FLIGHT Photo.)

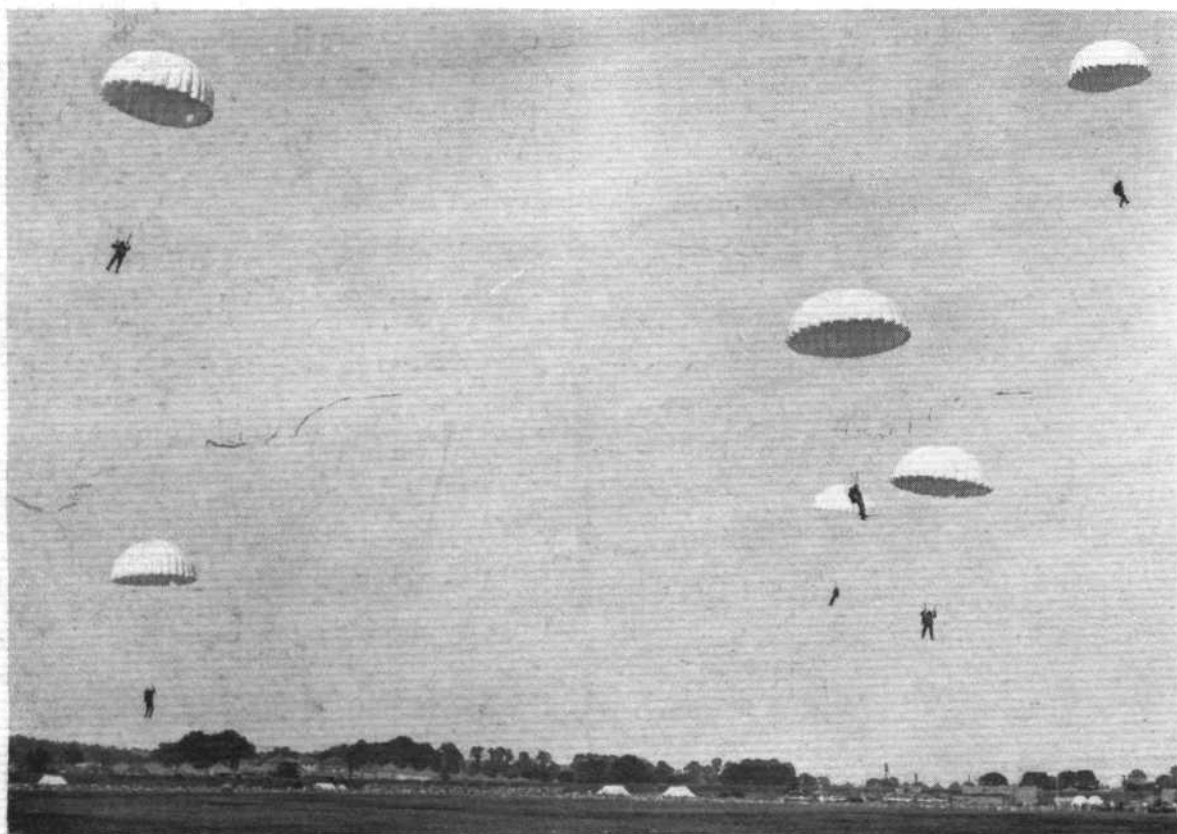


THEY'RE OFF! THE SIX PARACHUTES GENTLY BUT FIRMLY WITHDRAW THE SIX PARACHUTISTS FROM THE THREE VICKERS "VIMYS" AND —, (FLIGHT Photo.)

anti-detonating properties, which allows the engine to be run at full power at low heights. The speed of the "Furies" was, in other words, that normally attained with the engine throttles gated to 11,000 ft. or so. But even at that the machines were certainly fast, and the engine exhaust had a most impressive note, indicative of concentrated power.

By way of opening the demonstration, the "Furies" did a half-loop, coming out of the top of the loop with a half-roll. The manœuvre was a little "ragged," and one

began to think that perhaps, after all, No. 43 had not had its new machines long enough to attain the "finish" which characterised its evolutions in the old "Siskin" days. However, the subsequent evolutions soon dispelled any doubts one might have had on this score. Changing to line astern formation the "Furies" did a perfectly executed loop. This was followed by a half-loop, half-rolling out on top, also well carried out. The slow roll in line astern was well done, the machines keeping their stations with considerable precision.

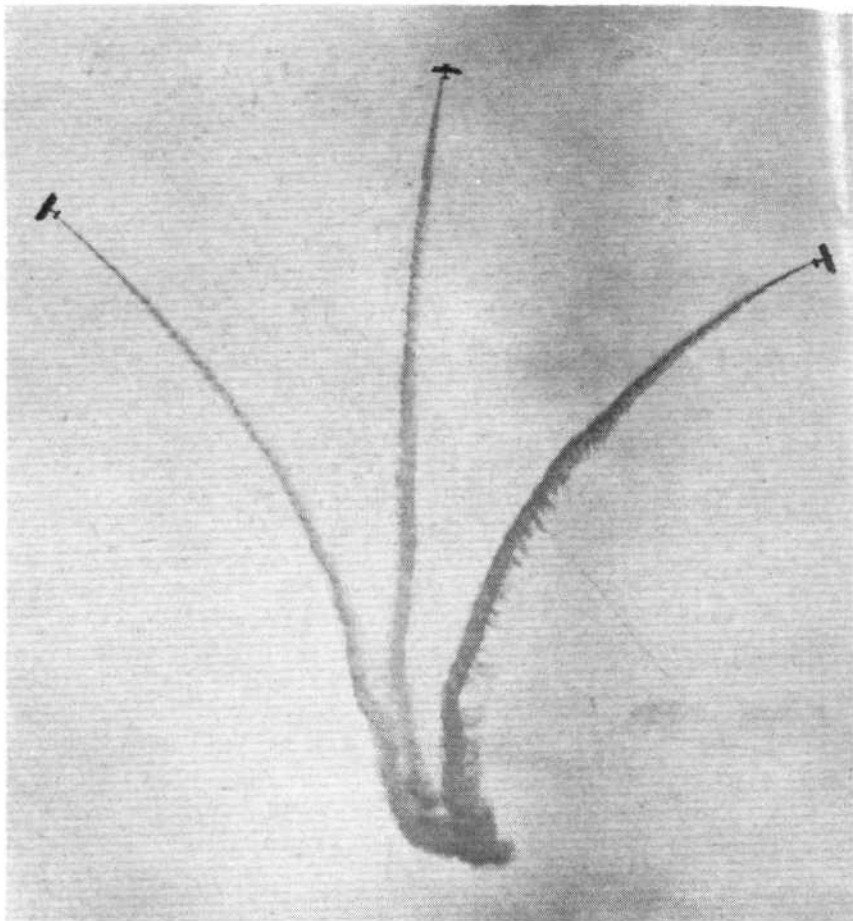
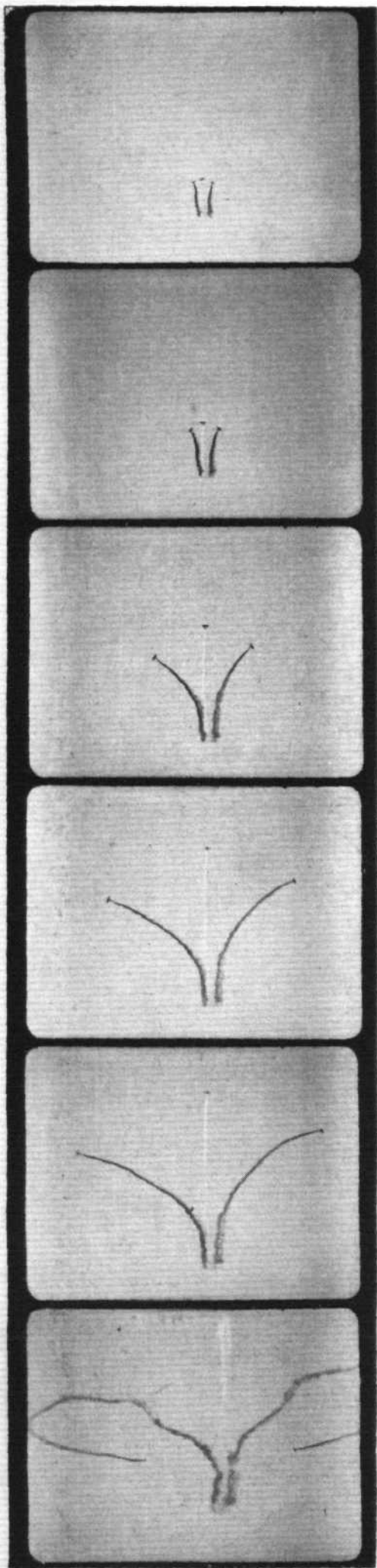


THE SIX PARACHUTISTS FIRMLY BUT GENTLY LAND ON THE AERODROME IMMEDIATELY IN FRONT OF THE MAIN ENCLOSURE. (FLIGHT Photo.)





AS THE WING MAN SEES THEM: A FORMATION OF HAWKER "HARTS," PHOTOGRAPHED FROM THE EXTREME LEFT-HAND MACHINE OF A VEE FORMATION.



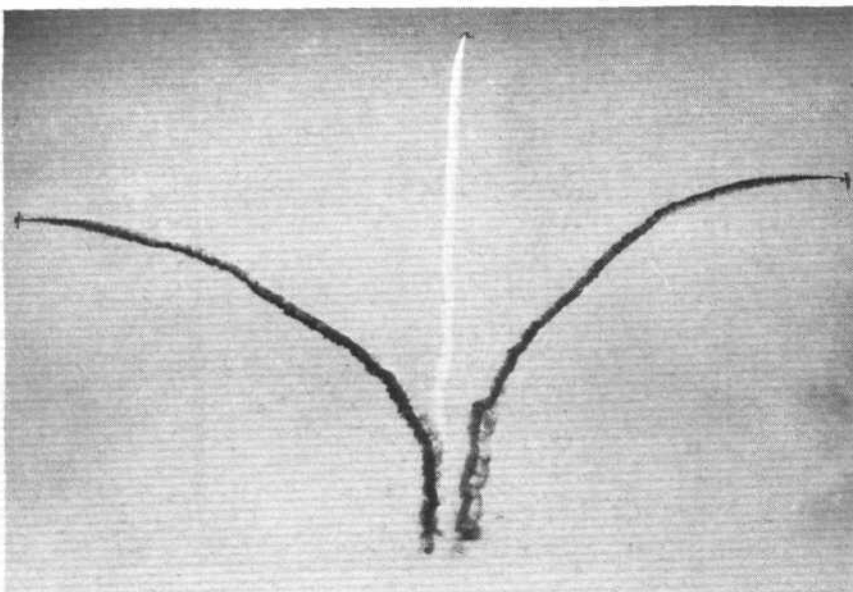
AEROBATICS IN SMOKE: A SELECTION OF VIEWS SHOWING THE THREE "GREBES" FORMING "PRINCE OF WALES' FEATHERS." SIX PICTURES ON THE LEFT SHOW, FROM TOP TO BOTTOM, PROGRESSIVE STAGES IN THE MANOEUVRE, WHILE IN THE OTHER TWO VIEWS THE DIFFERENCE IN THE EFFECT OBTAINED BY USING COLOURED SMOKE (ORANGE AND WHITE) IS VERY MARKED. (FLIGHT PHOTOS.)

Again changing to flight formation, an excellent loop was made, the machines keeping close together and seemingly running on rails.

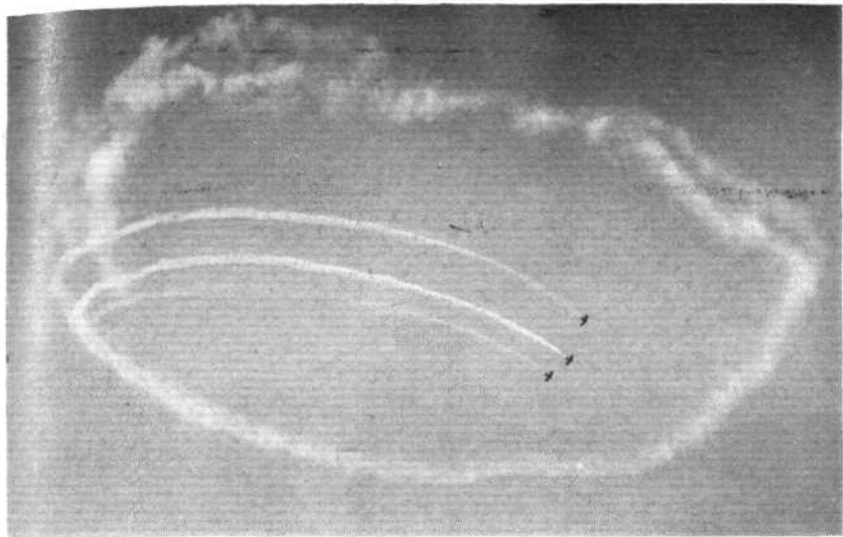
The finish took the form of a dive on to the aerodrome in flight formation, followed by a terrific zoom, which made a very effective exit.

#### Parachute Descents

The demonstration by the Parachute Section of the Home Aircraft Depot of the Irvin parachutes used in the R.A.F. was particularly good this year. While the Furies were flying furiously in the previous event, three Vickers "Vimy's" took off, each with two parachutists—Flight-Lieutenant J. B. Lynch, Sergt. C. Mayhew, Cpl. H. Marshall, L./A.C. H. Hudson and J. Hubbard, and A./C. S. C. Rooney—standing on the wing tips. These "Vimy's" cruised around until it was time for their "turn," and then came in, fairly low this time, over the main enclosure. When just over our heads the signal was given to release parachutes, and we saw the six parachutes simultaneously open out, pulling their respective







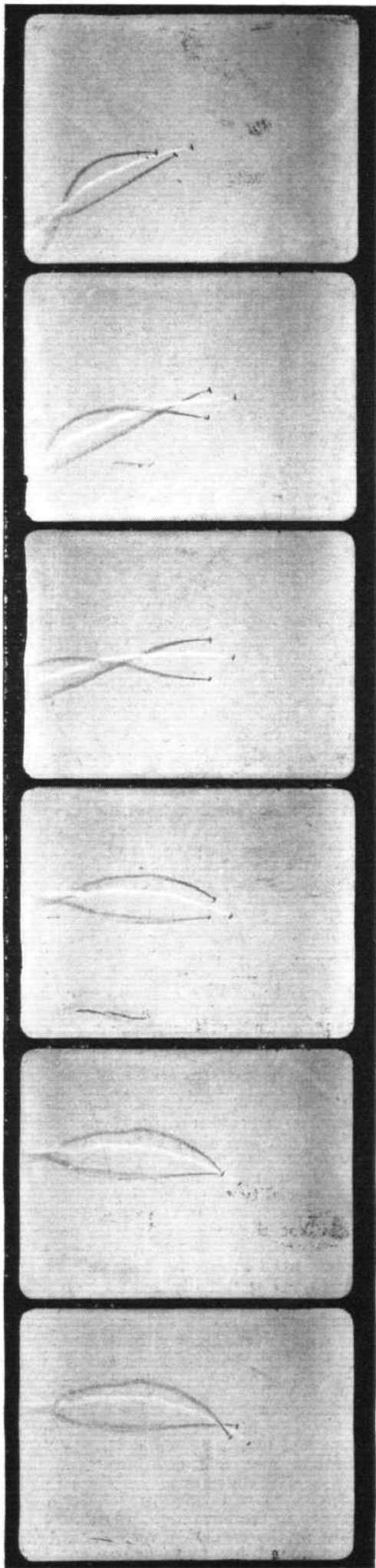
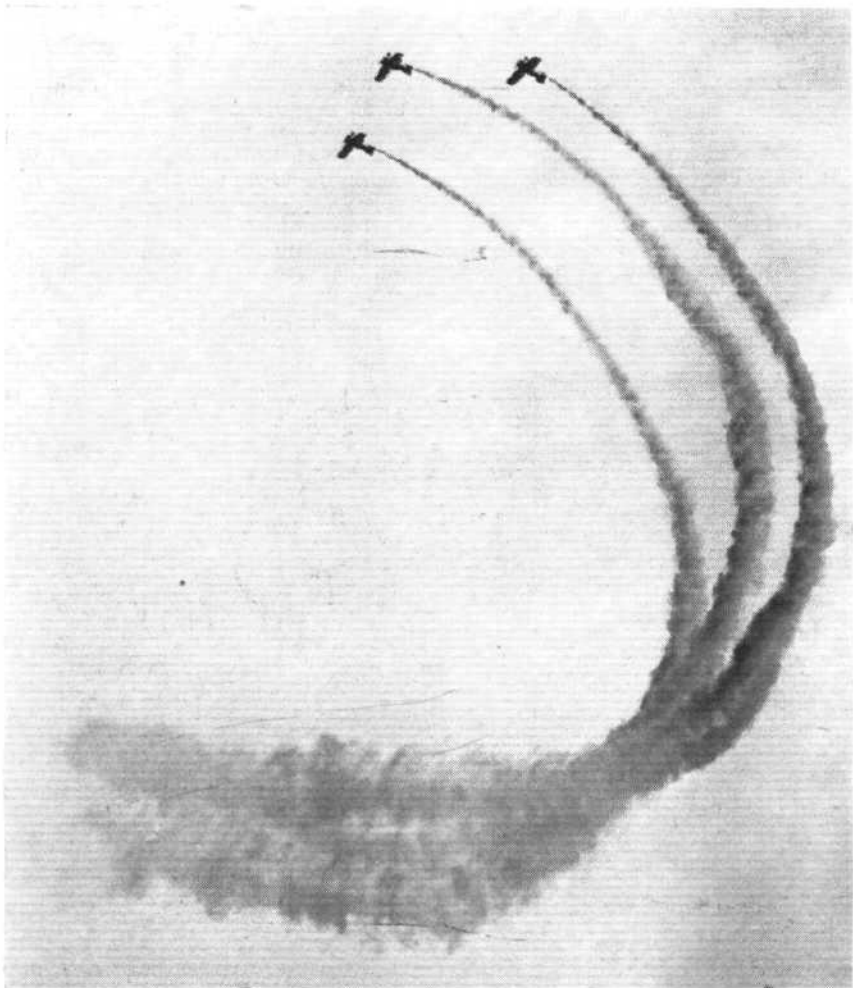
MORE SMOKED AEROBATICS: THE SIX VIEWS ON THE RIGHT AGAIN SHOW PROGRESSIVE STAGES: THIS TIME IN THE FORMATION OF A WREATH OF INTERWOVEN ORANGE AND WHITE TRAILS. THE OTHER PICTURES SHOW THE FORMATION OF A HUGE SPIRAL (TOP) AND A TRIPLE LOOP (BOTTOM). (Flight Photos.)

wearers willy-nilly off their posts. As they descended right in front of the enclosure two collided, but soon separated, and all six made perfect landings—some two point, some four point and some single point!

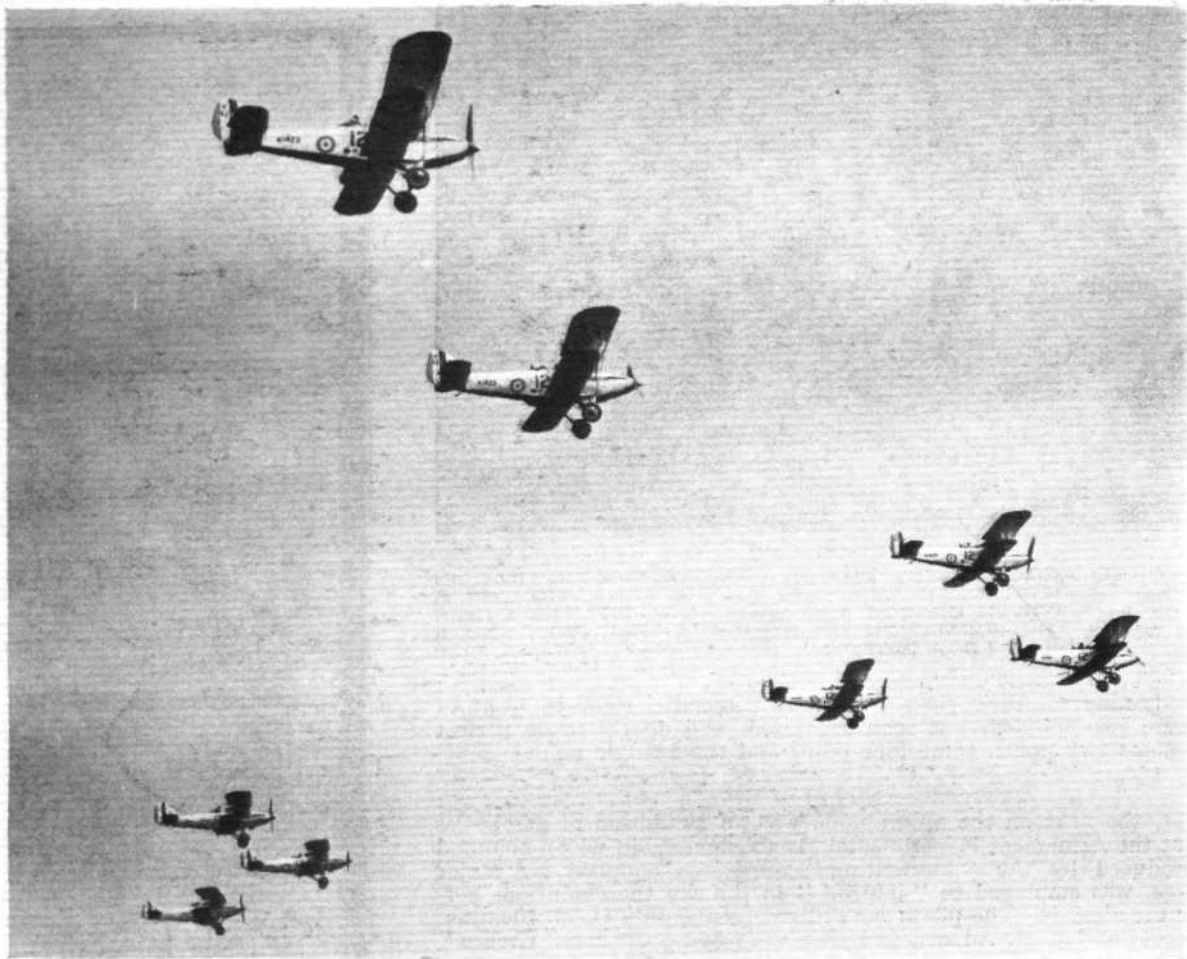
Aerobatics End in Smoke

Event 11, the next on the programme, was an exhibition of aerobatics by pilots of the Armament Experimental Establishment, in which coloured smoke, produced by the "Skywriting" apparatus supplied by Major Jack Savage, was employed to "imprint" in the sky the evolutions performed by the aircraft. The pilots were Flight-Lieutenants D. M. Fleming, C. B. Wincott and J. R. Adams, and they were flying Gloster "Grebes" (Armstrong-Siddeley "Jaguars").

These three first formed huge smoke spirals in orange-white-orange, after which they made a "Prince of Wales' Feathers," the outer plumes being in orange, followed by an extended triple loop.







NO. 12 (BOMBER) SQUADRON IN NORMAL SQUADRON FORMATION. (FLIGHT Photo.)

Next they wove a beautiful orange and white wreath, the two colours interlaced—a very pretty effect, this. Then they filled the whole of the "aerial stage" with an elaborate criss-cross of orange loops interwoven with white. Another, larger, Prince of Wales' Feathers concluded the performance.

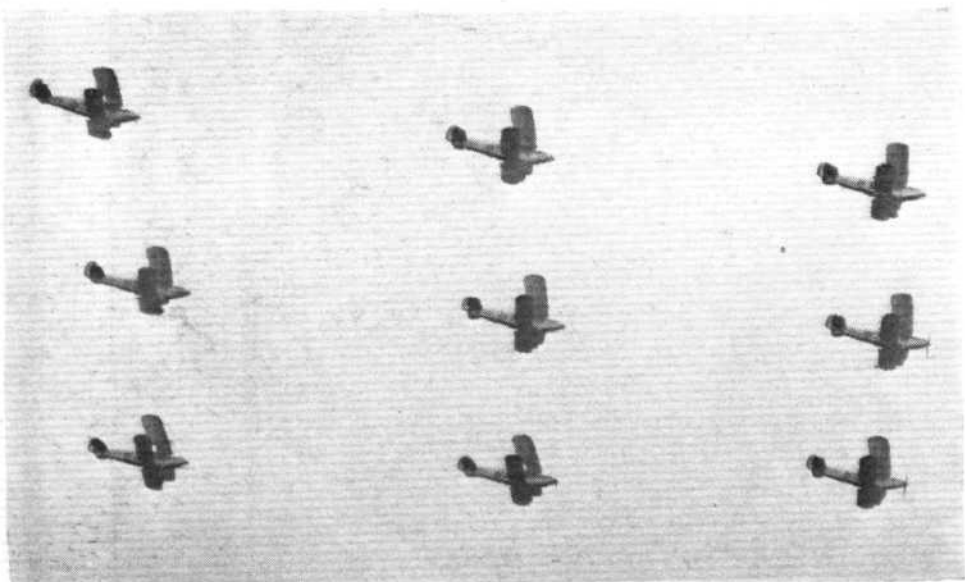
The whole demonstration was most effective, and the conditions were ideal for this event, for not only did the absence of wind retain the "shapes" formed by the smoke for quite a time, but the general colour effect was added to by the cloudless blue sky—the pinky orange and the white contrasting beautifully against the blue, while the changing tints of the smoke as it gradually melted away was fascinating to watch.

#### The "Harts"

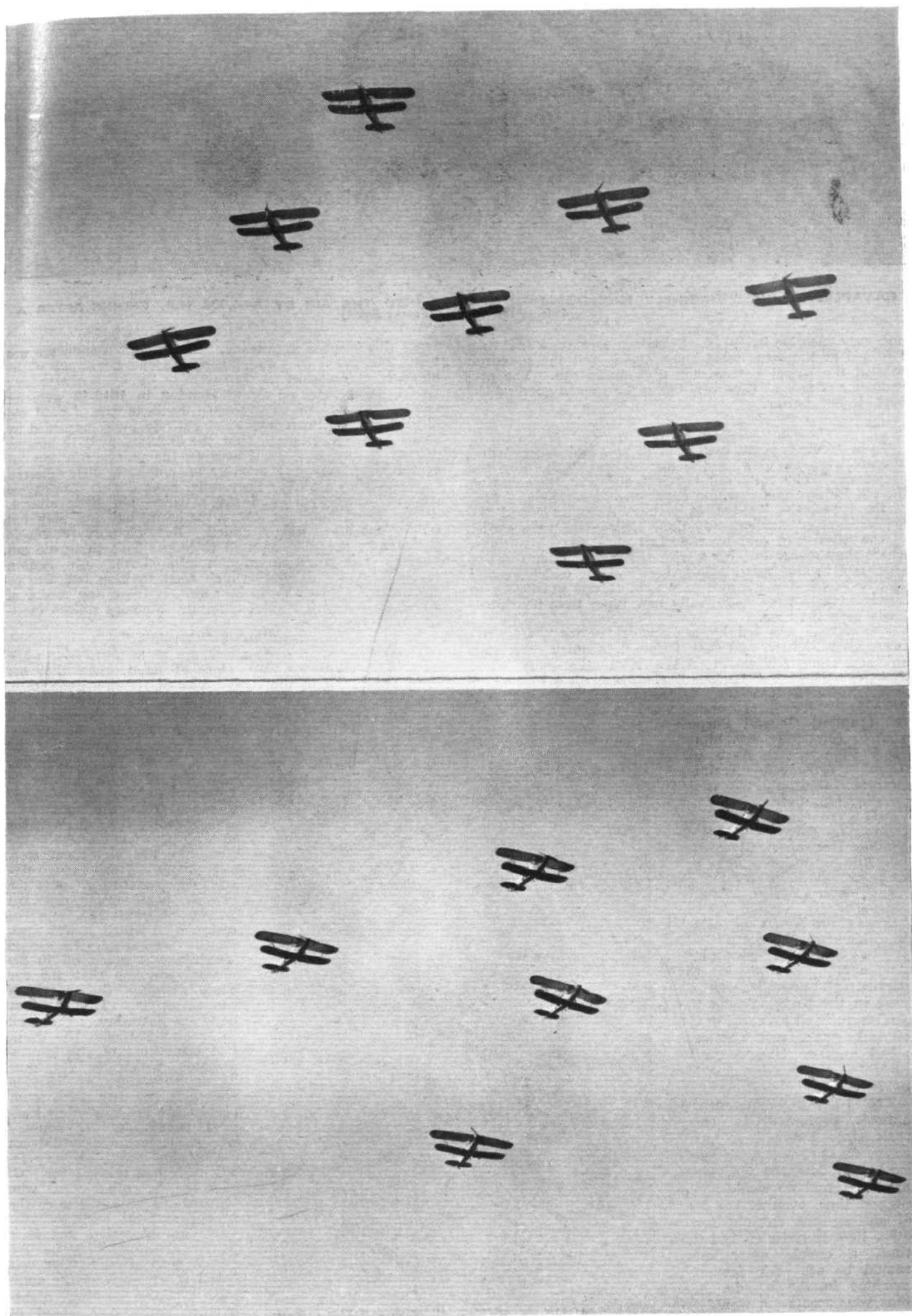
Hendon had not before seen a complete squadron of "Harts" in the air, and the spectacle was over-due. No. 12 (Bomber) Squadron made ample amends. Its speciality was to invent a number of new formations, which it is not suggested would be of any particular use in war, but which were extremely effective to watch. The rapidity with which the nine Harts changed direction and formation was exceptionally commendable. There were no dull waits. The squadron had scarcely crossed the aerodrome in one direction before it was seen returning in totally new guise. Just a few days before the Display one pilot had had to be changed, and the new man had had but little practice. Only once or twice, however, could any irregularity be seen in the formation, and that only in the earliest turns. That pilot found his form before our eyes, and for the last 15 minutes

out of the 20 in which No. 12 (B) Squadron held the stage there was not a machine out of place in interval or in distance. To reproduce the formations on paper would require accurate drawing instruments.

First the squadron crossed the aerodrome in orthodox manner, squadron formation, squadron V and line abreast. Then came two lines of four machines astern with the squadron leader between the two line leaders. Next came a triangle with four machines in each side of it; then a square of three machines abreast or astern, whichever you like to call it; then an arrow head; then some other geometrical figure—the word rhomboid seems to fit it—followed by a cross. The final figure resembled an anchor,

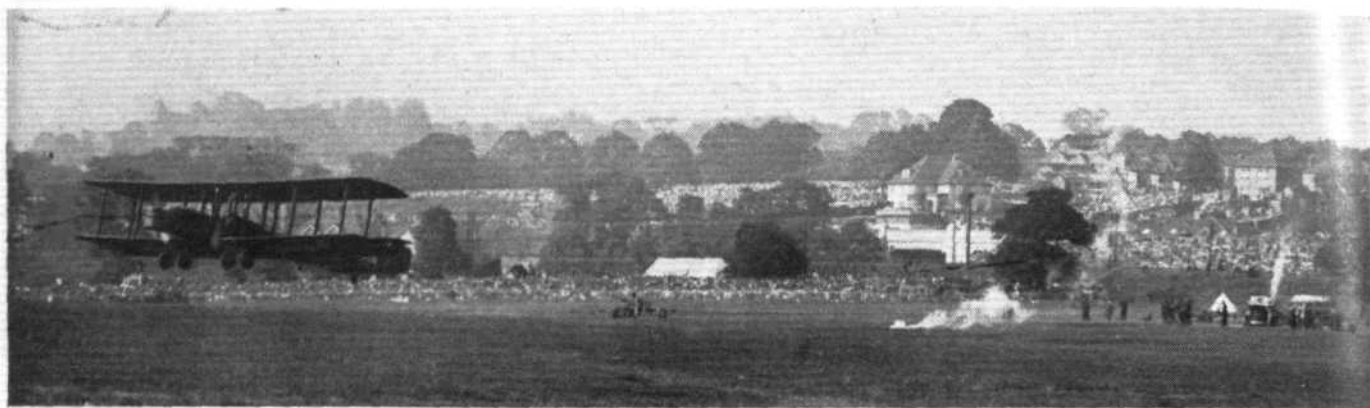


NO. 12 B.S. NOT SO NORMAL: QUERY—LINES ABREAST OR LINES ASTERN? (FLIGHT Photo.)



AT THE SIGN OF THE WHITE HART : NO. 12 (BOMBER) SQUADRON ASSUMES MANY NEW SHAPES. (FLIGHT Photo.)





**CATAPULTED:** A "VIRGINIA" NIGHT-BOMBER IS SHOT INTO THE AIR BY A 4,000 H.P. ENGINE AFTER A 100 FEET RUN. (Flight Photo.)

and very effective it looked. Squadron formation was then resumed at the same remarkable speed, and the squadron saluted the Royal Box with a dive and zoom. The performance of No. 12 (Bomber) Squadron was as good as the best, if not better.

#### Parading

As in previous years, a number of new and experimental aircraft were on view in the aircraft park adjoining the enclosures. The total number included was 16, counting the old Blériot as a new and experimental machine. Three of the types, the "Gugnunc," the "Autogiro" and the "Pterodactyl," had already done their little piece earlier in the afternoon, and were parked close to the railings, where they rather interfered with the view. They did not take part in the grand parade and fly-past which started shortly before 5 p.m., and in which, it was gratifying to discover, there were more really new types than has sometimes been the case.

The parade was led by a Hawker "Fury" (Kestrel) Interceptor Fighter, and then followed in quick succession an Armstrong-Whitworth A.W. XVI (Panther) Fleet Fighter, a Hawker "Hoopoe" (Panther) Fleet Fighter, a Gloster S.S. 19 (Jupiter) Multi-gun Fighter, a Fairey "Gordon" (Panther) General Purpose aircraft, a Bristol 118 (Jupiter) General Purpose aircraft, a Short "Gurnard" (Kestrel) Amphibian Fleet Fighter, an Avro 626 (Lynx) Advanced Training aircraft, a Westland "Wessex" (3 Genet) Civil aircraft, a Vickers 163 (4 Kestrel) Night Bomber, a Saro "Cloud" (2 Double Mongoose) Civil Amphibian, and last, but not least, the little Blériot monoplane with 50-h.p. Anzani engine.

For some reason or other, the Vickers "Viastra" (3 Jupiter) Commercial monoplane did not take part in the parade, although it was on view in the park. Seeing the "Viastra" left all alone in the aircraft park, one spectator asked another "Vy Astra"? to which the reply was "Vy not?"

The 11 new and experimental aircraft proceeded to show their paces, but with so many in the air at once it was impossible to follow the individual machines, and we would again suggest that, even at the cost of cutting out entirely some other item in order to find the time, a couple of minutes should be set aside for each machine in the parade. In that way spectators would be able to form an opinion of their individual performances. Under the present arrange-

ment this is quite impossible. The Blériot monoplane was taken off and flew, very gingerly it seemed, a circuit of the aerodrome. Those of us who were in the habit of watching this type of machine fly at Hendon in 1910-12 were for one brief space of time carried back to the "good old days," but the process was not entirely unaccompanied by shock. Was it possible that the Blériots used to stagger around in this way, as if ever on the point of falling out of the sky? Memory answers an emphatic NO. Reason counters with a YES. They must have done. The engine was the same type, and the machine but little altered. Strengthened here and there, perhaps, but probably not with much extra weight added. But, Memory returns to the attack; the Blériots used to loop. This thing did not look as if it could do even a mild climb. Ah, Reason replies, but the Blériots which used to loop had Gnome engines. So they did, to be sure. Is there any record of an Anzani-engined Blériot looping? Memory retires, crest-fallen.

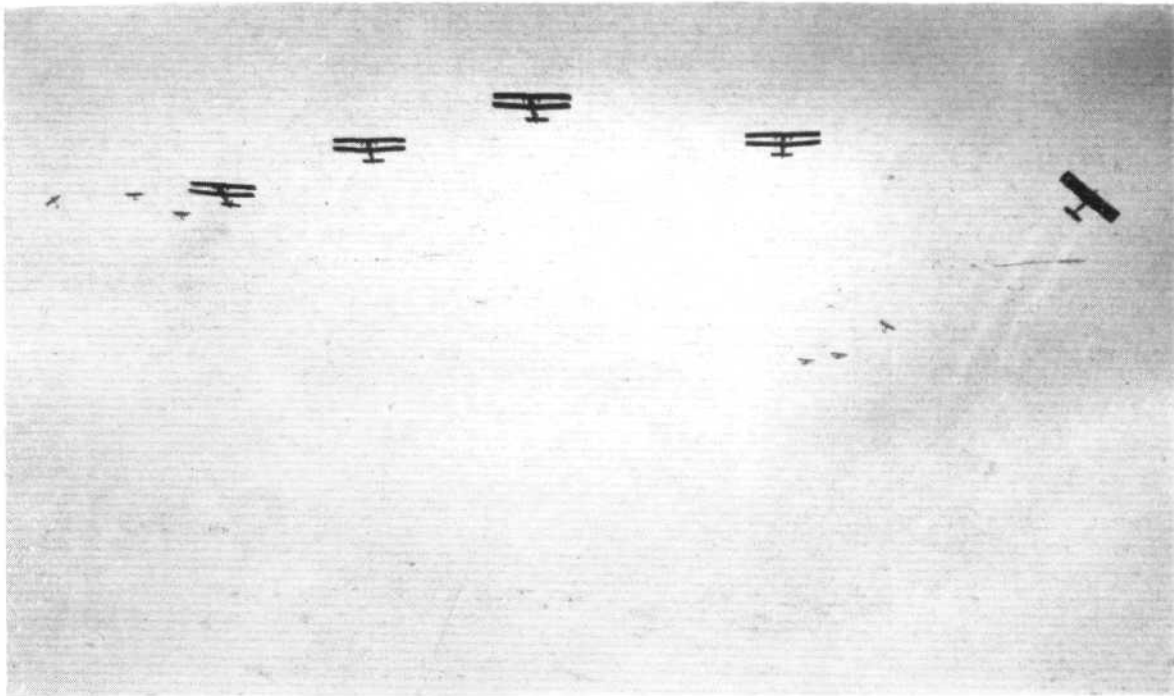
#### Catapulting a "Virginia"

There are some events which are more impressive when seen in an intimate way, close at hand, than they are when shown off in the large arena of Hendon aerodrome. When we saw a "Virginia" night bomber hurled into the air at South Farnborough a few weeks ago the sight and the sound was most impressive. At Hendon the anchorages had to be placed on the far side of the aerodrome, and the machine had to be launched at a considerable distance from the spectators. Consequently the scream of the 4,000-h.p. compressed-air engines did not pierce our ears, the steam which rose was scarcely perceptible, and the sudden acceleration did not borrow enchantment from the distance at which it was seen. At the dress rehearsal a second Virginia was taken off in the normal way, so that the eye could compare the length of the two runs. This was not done on Saturday. From all these circumstances the event lost something of the impressiveness which is its due. Those spectators at Hendon who were not airminded (and, alas! there are still a few hundred people in the country who are not) probably did not realise that anything very remarkable had taken place. Of course, the schoolboys who were at the rehearsal were the proper sort of audience, for they can appreciate the finer points of flying. None the less, a gasp of admiration was heard to go up from the audience as the sombre night-bomber gathered a speed of 60 m.p.h. from nought in a space of 100 ft., and soared serenely away.



**SOME MORE SERVICE SKY-WRITING:** THE DESTRUCTION AND BRINGING DOWN IN FLAMES OF A KITE BALLOON, DEPICTED HERE, IS NOW A POPULAR AND REGULAR SPECTACULAR EVENT IN THE DISPLAY. (Flight Photo.)





"AND THEN THERE WERE FOUR": ONE OF THE HEAVY BOMBERS ("HYDERABADS"), WHICH ARE ABOUT TO BOMB THE ENEMY GUN POSITION (SEEN IN THE PICTURE BELOW): FALLS A VICTIM TO THE ATTACKING FIGHTER SQUADRON ("SISKINS"). (Flight Photo.)

#### Destruction of Kite Balloon

To those with a destructive turn of mind, Event No. 15, the attack on and destruction of a kite balloon, was all that could be desired. It has become a hardy annual, but still thrills many hundreds of hearts. In this event the kite balloon ascended a few hundred feet to enable the observer (the veteran Major Sandbags, who by now is growing beautiful long whiskers) to count the "gate." Three single-seater Bristol "Bulldog" fighters of No. 32 (Fighter Squadron), led by Squadron-Leader B. E. Baker, D.S.O., M.C., A.F.C., came on the scene, however, and considerably upset his calculations with machine-gun fire. After a second attack a little burst of flame was observed at the side of the balloon, on seeing which Major Sandbags decided to utilise his return ticket—and parachute. Meanwhile, the balloon got well alight and followed suit, slowly at first, and finally with a rapid plunge, with roaring flames and dense black smoke. A spectacular event, yet a truthful picture of Service aerial activity in war.

#### The "Set Piece"

The final event, the "Set Piece," this year was a straightforward story well told. War had broken out, and a long-range gun—Big Bertha's little sister—was cleverly hidden amongst deserted farm buildings alongside a small wood, together with shelters, ready-use ammunition dumps, decauville railway, etc. This gun has been shell-

ing an important military base, which it threatened to make untenable. Its position, however, was discovered, and a bombing attack was prepared to destroy it.

The defenders received information of the raid, however, and allotted two single-seater Fighter Squadrons (Nos. 41, Squadron-Leader P. Huskinson, M.C., and 56, Squadron-Leader H. V. Rowley, with "Siskins") to oppose it.

A squadron of day bombers (No. 33, Squadron-Leader W. H. de W. Waller, A.F.C., with Hawker "Harts," Rolls-Royce "Kestrel") was then seen approaching, with the anti-aircraft shells from the battery in the farm bursting around them. As they got near the anti-aircraft fire ceased, and the fighters dived in to attack, some from above and some from below. Two of the fighters were brought down in flames, while one of the bombers was also placed out of action, but the others succeeded in bombing their objective before retiring with the fighters still in pursuit.

Then five heavy bombers (Handley-Page "Hydrabad," Napier "Lion," of No. 503 Bomber Squadron, Wing-Commander H. I. Hammer, D.F.C.) appeared on the scene. These were first attacked with anti-aircraft fire and then by the second fighter squadron, which had previously taken off. Here, again, casualties occurred on both sides, but the bombers were able to unload their missiles and complete the destruction of Big Bertha's little sister, the ammunition dump, the farm and Uncle Tom Coby and all.



PEACEFUL TO LOOK AT, BUT — : THE DESERTED FARM WHERE THE BIG GUN WAS ARTFULLY CONCEALED BY THE ENEMY. THE BOMBER SQUADRON SHOWN IN THE PICTURE ABOVE SUCCESSFULLY DEMOLISHED IT. (Flight Photo.)

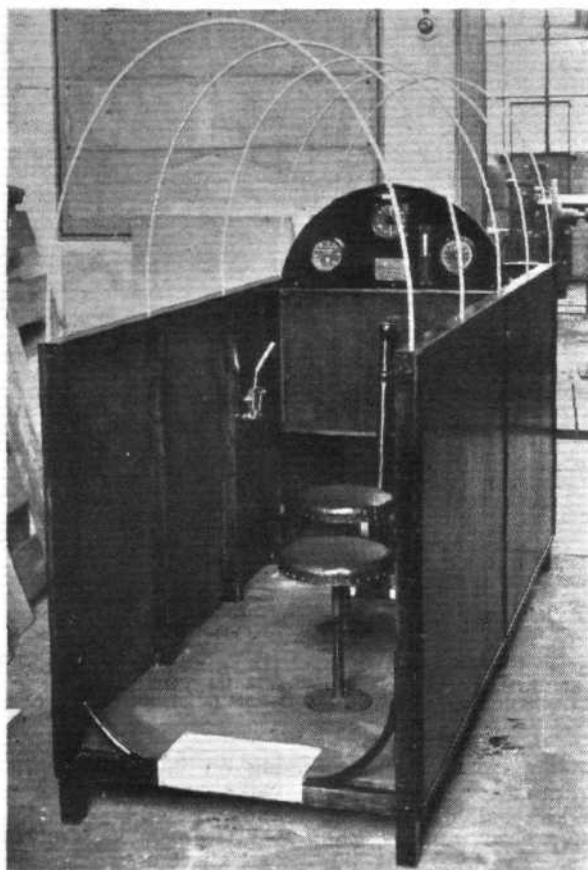
# AIR SERVICE TRAINING

**H**R.H. the Duke of Gloucester formally opened the A.S.T. School at Hamble on Thursday, June 25. A large number of distinguished British and Foreign officers were present, all of whom agreed that there was every evidence that the school was being run in an exceptionally thorough and practical manner.

Readers of *FLIGHT* will already be well aware of the large range of flying courses provided at the school, as the full syllabus was published in *FLIGHT* for March 6.

AIR MARSHAL SIR JOHN HIGGINS, Chairman of the Board of Directors of Air Service Training, Ltd., gave those at the luncheon an idea of the objects of the school, and pointed out that every endeavour was being made to make the standard of training in no way inferior to that obtainable in the R.A.F. At the present time, he said, the Air Ministry has unfortunately to refuse, or at least to defer, a large number of applications from Officers of other Air Forces wishing to attend courses at their training schools, and it was hoped, therefore, that such officers would now come to Hamble. He introduced the staff, all of whom, he said, had had long connection with training in the Royal Air Force, including Group Capt. R. J. F. Barton, the Commandant, who, since learning to fly in 1913, had, almost entirely, been connected with training, and the Chief Instructor, Flt.-Lt. H. F. Jenkins, who joined the R.F.C. in 1916, and had been mainly employed in connection with flying training since the war, and only left the Central Flying School recently after a period of over four years as an A.I. Instructor.

In conclusion, he expressed the gratification which every-



**The Reid and Sigrist Pilot Testing Apparatus which is used for ground instruction at the A.S.T. School at Hamble. A canvas hood is pulled over the rails, when in use, thus giving the machine the appearance of an aircraft cockpit in thick fog.** (FLIGHT Photo.)

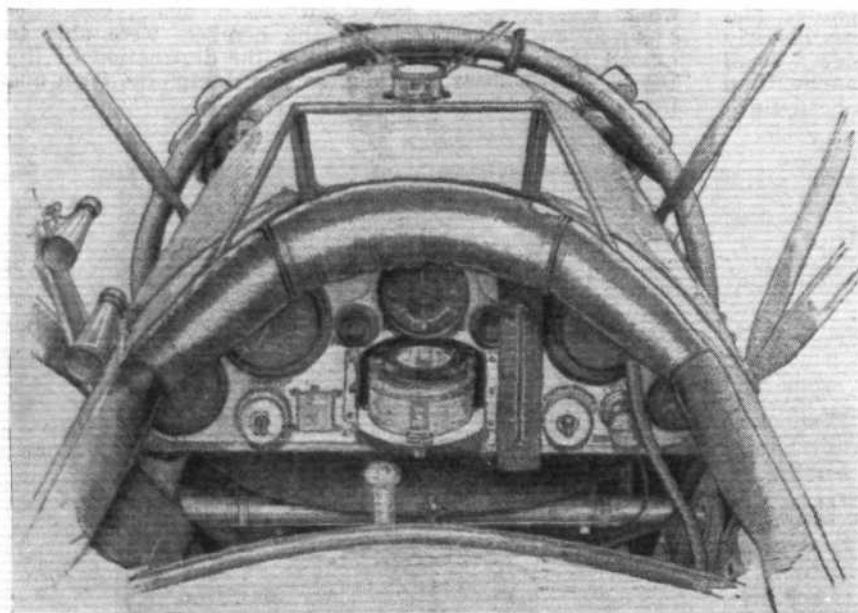
connected, since co-operation with other constructors had been secured so that prospective pilots from foreign countries could obtain instruction on the machines which were being exported to their country.

One of the greatest advantages, he said, that he saw in having such a school in England, was in our weather, since anyone who had been taught to fly safely in all weathers in England, and who could utilise our small fields for landing in, would be doubly safe in almost any other country in the world.

He then proposed the health of Mr. J. D. Siddeley, whom, he said, might be compared to the main-spring which drove the A.S.T. watch.

MR. J. D. SIDDELEY, in reply, drew attention to their indebtedness to the Air Ministry, from whom they had, he said, received full approval, and he quoted an Air Ministry letter which promised that foreign officers whose applications to be trained in the R.A.F. could not be accepted would have their attention drawn to the facilities offered at Hamble; also he was glad to say that a promise had been made for parties from Hamble to have access to the C.F.S. at Wittering, other service training schools and units, the R.A.E. at Farnborough, the A. and A.E. at Martlesham, and the M.A. and E.E. at Felixstowe.

GROUP CAPT. BARTON thanked the Duke of Gloucester for opening the school, and said he was glad to welcome Lord Amulree; Air Commodore Merino, Chief Under-Secretary of State for Air, and Chief of the Chilean Air Force; also Mr. Montague, Under-Secretary of State for Air; Air Vice-Marshal T. Webb-Bowen, Air Member for



**A view in the cockpit of the Avro Tutor, over which the hood is pulled for blind flying instruction. The Reid and Sigrist Turn Indicator occupies the centre position.** (FLIGHT Photo.)



Personnel; and Air Vice-Marshal H. C. T. Dowding, and all other visitors, including the large number from overseas.

He spoke of the great need they saw for instruction in blind flying, and as an example of the result of such training he said that recently an Instructor had flown a machine with the hood over his cockpit from Hamble to Heston, arriving directly over his destination. Such a flight, he said, would not be expected of pupils in the ordinary way, but they were at least trained to make a blind flight over a triangular course of about 60 miles, using their instruments only.

LORD AMULREE, Secretary of State for Air, who spoke on behalf of the visitors, mentioned that he was particularly impressed by the close co-operation of all who were interested in flying, and that they all worked together to advance the art and increase its efficiency, safety and popularity.

A.S.T. in particular, he said, showed great evidence of this co-operation by the fact that so many members of the staff were distinguished officers of the R.A.F., so what the R.A.F. had lost, civil aviation had gained. He referred to the prevalence of low flying in bad weather and to accidents which had therefore occurred. If blind flying methods were used, he said, there would not be such accidents, and although many problems had to be solved before it could be adopted for fast civil aircraft, he was glad that the school was making a particular point of this.

AIR COMMODORE MERINO also spoke, and expressed his pleasure for receiving the invitation to-day and his happiness at being able to accept it.

It will be seen that one of the branches of flying which appear to be considered most important by all the members of the staff is that of blind flying, and certainly Group Capt. Barton and Flt.-Lt. Jenkins have made a particular study of this branch. At the present moment Avro Tutor (Lynx) and Avro Avians (7-cyl. Genets) are being used for this particular form of flying, with a hood which can be drawn over the rear cockpit, thus necessitating the pilot flying entirely by his instruments. The chief extra instrument fitted for this purpose is the Reid & Sigrist Turn Indicator, which, of course, is augmented by a very full set of the other usual instruments. This particular Turn Indicator has, we understand, been chosen by Flt.-Lt. Jenkins after a careful trial of all other makes.

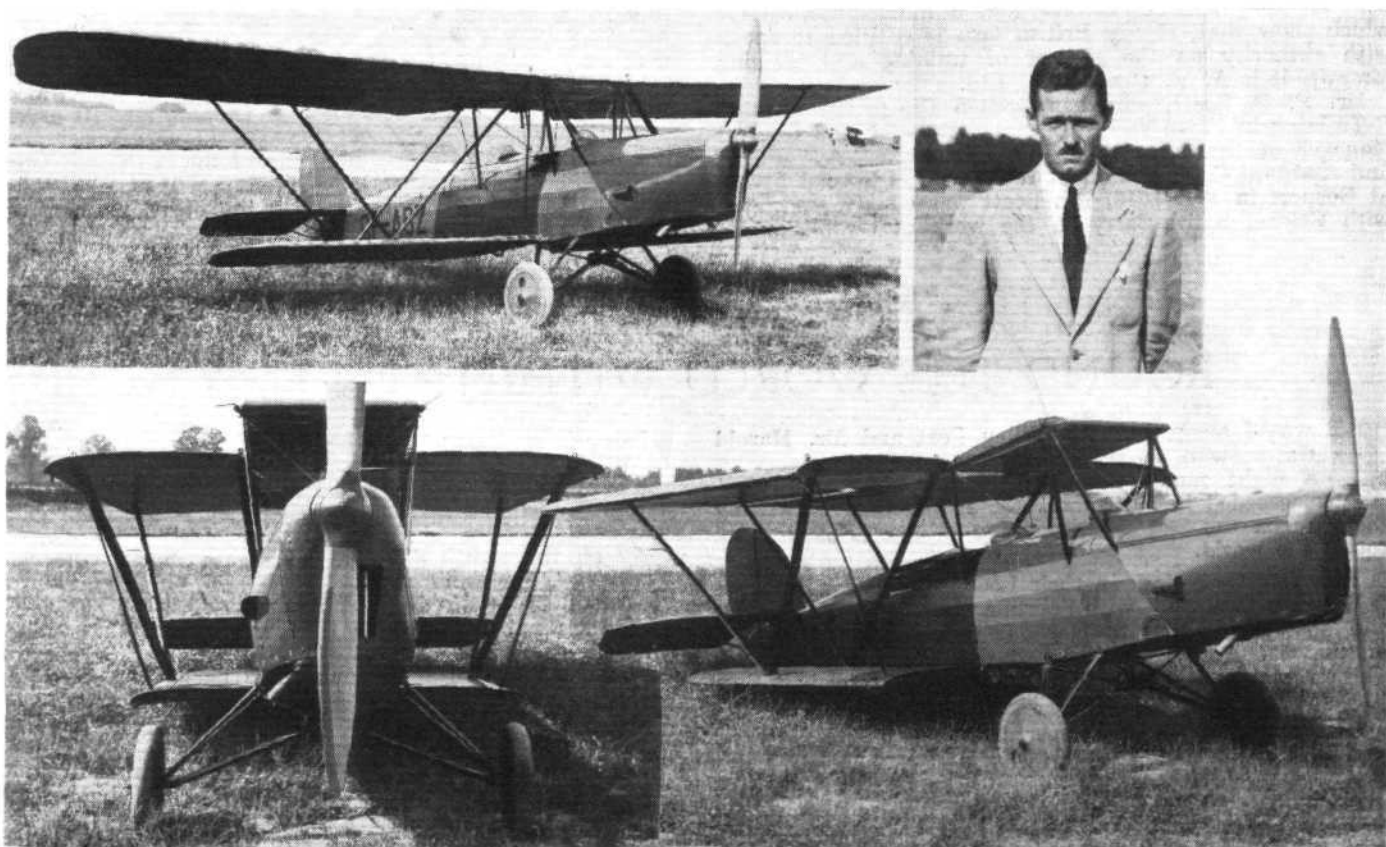
Blind flying ability is undoubtedly a necessity for all pilots engaged in commercial work, but until they are able to indicate their position to other aircraft, we are not at all sure that it is desirable to encourage actual demonstration of this ability, since if pilots, and particularly the younger civilian pilots, feel entirely confident in leaving an Aerodrome enveloped in low cloud, there are bound to be crashes which could have been avoided by waiting for better weather, such as is now ordinarily done, instead of their flying straight out into the "murk."



#### A Visit to the A.I.D.

THE No. 1 Stores Depot, R.A.F., at Kidbrooke now houses an extraordinarily interesting range of instruments and equipment for testing every conceivable instrument and material which is used in the R.A.F. A visit was arranged for a large number of people last Friday, June 26, and an endeavour was made in some two or three hours to give them an idea of the equipment now installed. In the space at our disposal, it would be quite impossible to give even an abbreviated list which would show the immense amount of work now being done there, and we

can only say that there is very little now used in the Air Force which does not undergo the most modern and strict test at Kidbrooke. The rooms at present fitted up comprise a standard clock room, a transmitted test room, instrument test rooms Nos. 1 and 2, a battery test room, an oxygen test room, H.T. flash and extra H.T. flash rooms, a lens and film-testing room, a photographic test room, generator test benches, two rooms for gauge testing, condition and physical test rooms for materials, a paint and dope room, and micrographic, oil, chemicals, heating treatment, and metallic test rooms.



Mr. John C. Webster, a Director of the Montreal Light Aeroplane Club, with his Curtiss-Reid Rambler (Gipsy III), which he is flying in the King's Cup Race. Mr. Webster brought his aircraft over unpacked, that is, simply folded and secured on board. At Southampton it was towed to Hamble where its wings were spread and it was flown to Heston. There it will be cared for by the firm of Brian Lewis and C. D. Barnard Ltd., while in the country. (FLIGHT Photo.)



## AIR FORCE TRAINING

**A**T the present time, with the Royal Air Force Display just held, all air-minded people are taking a special interest in the R.A.F. and its work.

The Display is the annual occasion on which the British taxpayer has an opportunity of seeing the aircraft types of the R.A.F. and the manner in which they are used. The Display is, in other words, the best possible demonstration of the pitch to which training has been carried. It is thus very appropriate that the firm of A. V. Roe & Co., Ltd., has decided to state in the present issue of FLIGHT its views on the extremely important subject of training and the most suitable types of aircraft for training purposes.

A. V. Roe & Co., Ltd., is a firm with a longer and closer connection with the production of training types than any other firm in the country, and possibly in the world. The Avro 504 was first produced in 1913, and with modifications occasionally as requirements demanded, the type has been the standard training machine for something like 18 years. This has obviously been no mere accident, but must be a result of very special qualities in the aircraft, qualities so eminently suitable for training machines that they have kept the type alive for so unprecedented a period.

Good as was the old Avro 504 in its different versions, the time must ultimately come when it has to be superseded, and the Avro firm itself has been quite alive to the fact, and has set to work to produce two modern types capable of taking over where the 504 left off, or rather one type to supplant the 504 and one to go a great deal further.

These two types are the 621 and the 626, both fitted with the Armstrong-Siddeley "Lynx" engine. The 621 is designed specially for flying training, while the 626 goes further and enables *all* training, from *ab initio* flying training to the complete training in all the various specialised subjects, to be carried out on the one type.

The arguments in favour of these two types are set out so clearly in the section entitled "Air Force Training" that we need not elaborate them here. It may, however, be of some assistance to readers if we outline quite briefly the careers of some of the Avro men who have been responsible for the production of these new training types, careers which show that, if any British firm is entitled to speak with authority on the subject of training and training aircraft, it is A. V. Roe & Co., Ltd.

Mr. F. P. Scott, who has written the article entitled "Training in Peace and War," is a Director and General Manager of the Avro Company. As O.C. "A" Flight and Assistant Commandant at the School of Special Flying at Gosport in 1917-1918, Mr. Scott was closely associated with Colonel Smith-Barry in the work of establishing a

system of training which has since attained world fame. In 1918 Mr. Scott was a member of the Smith-Barry Training Mission to the United States of America, and in 1920-22 he led the Scott Mission to the Chilean Air Service. Mr. Scott thus has had long and intimate personal knowledge of the problems and practical difficulties met with in the running of a training centre.

Mr. R. J. Parrott, who has contributed the article "Some Constructional Considerations of the Ideal Military Training Aeroplane," has been closely associated with Avro aircraft since 1909. When the company was formed in Manchester in 1910, he became Works Manager, a position which he occupied for six years. When the Hamble branch was opened in 1916, Mr. Parrott took charge there, and controlled all the experimental work of the company at Hamble until 1928. He has thus had an exceptionally wide experience of the experimental side of the production of training aircraft. During the past two years Mr. Parrott has travelled extensively on behalf of the Armstrong-Siddeley group, and has thereby gained first-hand knowledge of conditions in most parts of the world. He is now one of the principal technical officers of the Avro Company.

Mr. Roy Chadwick, who for a number of years has been Chief Designer of A. V. Roe & Co., Ltd., joined the company as a draughtsman in 1911. Later on, when the activities of the firm increased, he took charge of the drawing office, and was promoted to Assistant Designer, shortly afterwards stepping into the post of Chief Designer which he now holds. Mr. Chadwick has thus been responsible for the development of the 504, from the first experimental machine through all the stages up to the 504N, with "Lynx" engine, of which several hundreds are in use at home and throughout the world. As Chief Designer he has, of course, been responsible for the design of the new types, 621 and 626, which thus have not only long experience, but one man's long experience, behind them.

Mr. R. H. Dobson, who has for several years been Works Manager, joined the Avro firm as a junior draughtsman in 1913. He later made a special study of erection of aircraft, and during part of the war he was in charge of outside erection and delivery of Avros to the Royal Naval Air Service at Isle of Grain. Later he became Assistant Works Manager, and shortly after the war he took over his present post. Mr. Dobson has thus, it will be realised, had wide experience on the manufacturing side, controlling mass production of training aircraft under war conditions, and the development of economical production in times of peace, not only of the 504N, but later of the new all-metal training aircraft. This necessarily included the very difficult period of transition in changing from all-wood to all-metal construction.



## ROUND THE WORLD WITHIN TEN DAYS

**I**T would seem that Mr. Wiley Post and Mr. Harold Gatty, who, as reported last week, are attempting a flight round the world within ten days, have succeeded in their task, for at the time of writing they are on the last 2,000-mile lap of their 16,000 miles round the world.

They left New York in their Lockheed "Vega" (Pratt & Whitney "Wasp," with Scintilla magnetos) on June 23, and flew 1,200 miles to Harbour Grace, and from here, on the second day, they crossed the Atlantic to Sealand, Chester, a distance of 2,300 miles. After a brief halt they proceeded to Berlin, another 700 miles.

On the third day they covered 1,000 miles to Moscow, and on the fourth day they made another 2,000 miles to Novosibirsk, Siberia.

Continuing, after a halt of eight hours, they added 1,000 miles to Irkutsk, where they landed on the fifth day, flying another 1,000 miles to Blagovenstschensk after

a halt of two hours. On the sixth day only a short hop of 400 miles to Khabarovsk was accomplished, but on the seventh day covered 2,500 miles to Solomon, Alaska, across Kamchatka and the Behring Strait—the most difficult section of the whole flight. They landed at Solomon early on the eighth day and left again shortly after for Fairbanks, 500 miles away.

At mid-day they were off again, and flew 1,400 miles to Edmonton, Alta, where they arrived in the evening. On the ninth day, July 1, they left Edmonton on the last 2,000 miles of their round trip back to New York. It was their intention to make one hop to Cleveland, Ohio, 1,650 miles, and after refuelling set off at once for New York.

As explained above, at the time of writing we are unable to record their arrival in New York, but as far as our news takes us this week, they have, to all intents and purposes, succeeded in "girdling" the earth within the ten days.





# PRIVATE FLYING AND CLUB NEWS



**LEICESTERSHIRE AERO CLUB.**—On Saturday, June 27, a meeting called a Motor Gymkhana and Flying Display was arranged at Ratcliffe Aerodrome for some 250 members of the Leicester Cripples' Guild, who for some years have always been given an outing by the Leicester Automobile Club. Hitherto, the outing has usually been in the form of a country drive, finishing with tea in the grounds of some large country mansion placed at the disposal of the club. This year it was decided to depart from this routine, and the gymkhana and meeting at Ratcliffe was the result.

Members of the Cripples' Guild were guests for the day of Mr. W. Lindsay Everard, who is President of the Leicester Aero Club and Vice-President of the Leicester Automobile Club.

The introduction of motor car events formed a pleasing change from the usual type of flying-club meeting, and some 1,100 of the public came and paid for admission.

A Potato Race, in which the passenger in the competitors' cars had to collect a line of potatoes, was won by Mr. C. E. Hurst, with Mr. F. C. Marshall as passenger. F/O. L. Freestone gave a very fine Aerobatic Display, after which Mr. F. Coleman, in a Chrysler Saloon, won the 100 yd. race in reverse gear. An Aeroplane v. Motor-car race was won by Miss Winifred Spooner in a Moth, beating Mr. H. C. Macleod in an A.C. car. A handicap for the aeroplane was introduced by making a flight to the starting post and keeping outside the course all the way, whereas the car started round the course. A humorous event was "Musical Cars," where a line of cars had to drive round outside of chairs, and this was won by Mr. C. M. Hartley, with Mr. W. J. Hunter as his passenger. Balloon bursting in the usual manner was won by Mr. R. C. Winn, while the balloon bursting by cars was won by Mr. R. Taylor, on a Hornet; this event was a very comic one and caused a large amount of laughter. An excellent little demonstration of formation flying was put up on Moths by Messrs. R. C. Winn, C. E. Hurst and L. S. Freestone; their Prince of Wales Feathers at the end was exceptionally neat. Tent-pegging from a car, in which the pegs were pieces of paper, also provided an exceptionally amusing event. A 1905 one-cylinder De Dion Bouton car was then bombed by a Moth and many direct hits were obtained. The final event was a tug-of-war between a car being driven in reverse and some 30 members of the Band and St. John's Ambulance Corps, this

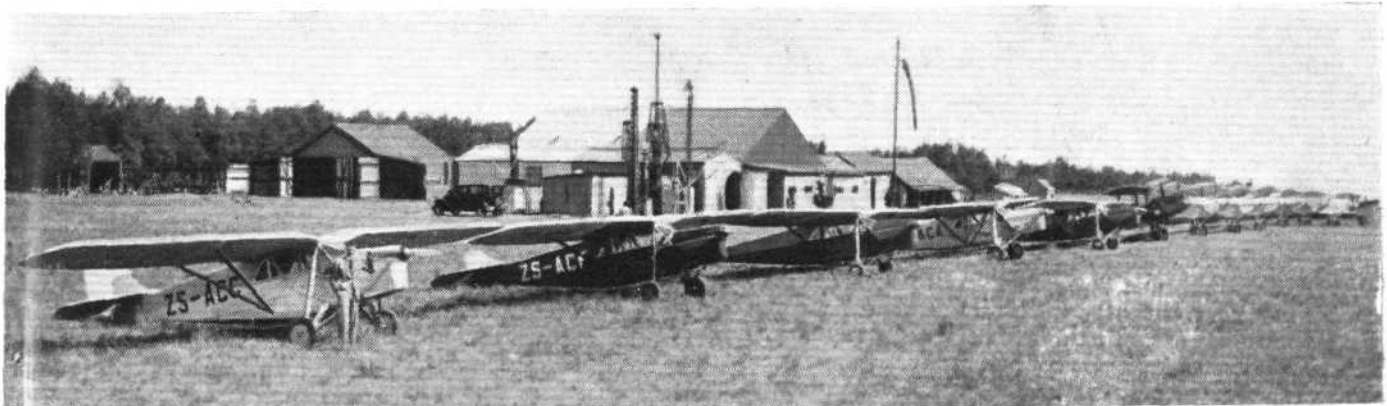


**FOR THE KING'S CUP:** The new Bluebird with a Gipsy III engine, which Mrs. Victor Bruce will fly in the King's Cup Race. (FLIGHT Photo.)

resulted in a stalemate, neither being able to gain the requested amount of ground. The programme finished at 7 p.m. and provided a very much happier day for the cripples than in all their previous outings. Thanks are undoubtedly due to Mr. Lindsay Everard for allowing the use of his aerodrome on this occasion.

**A FLYING CLUB AT COVENTRY.**—Alderman W. H. Batchelor, Mayor of Coventry, was elected first President of the Coventry Aero Club, which was formed on Thursday evening, June 18. Sir John Higgins, who was elected as President, said that there was no reason why the club should not run perfectly well if they obtained the subsidy. Mr. H. J. Jackson was appointed Secretary and Mr. C. R. Hallam, Treasurer.

**PLYMOUTH OPENING.**—His Royal Highness the Prince of Wales will open the Plymouth Municipal Aerodrome at Roborough on July 15. He will be met by the Mayor of Plymouth, and in all probability the Lord Lieutenant of Devonshire, on his arrival at the aerodrome, whence it is hoped he will fly. Commercial aviation has already started at Roborough with the opening of a Redwing Aircraft agency by Mr. I. F. Payne.



**DE HAVILLANDS IN SOUTH AFRICA:** Moths and Puss Moths lined up at Baragwanath Aerodrome prior to flying to Witbank to take part in the Witbank Flying Club's Pageant. Standing by the nearest Puss Moth is Mr. J. Davison, Secretary of The De Havilland Aircraft Co., of S.A. (Pty.), Ltd.





This is the second of our series of maps which it is hoped will help those who are planning tours abroad to settle the preliminary details of their itinerary.



# GLIDING

## HANWORTH GOES A'SOARING

**N**ATIONAL FLYING SERVICES staged a public demonstration of all forms of gliding at Hanworth on Sunday, June 28. It was really a misnomer to call it gliding, it ought to have been haymaking, since it started by making several vehicles, ranging from motor cars down to Zögling, do their best thoroughly to churn up the hay which lay thick upon the ground. Having done this for the whole afternoon it was only natural that it should have become a little mixed, so in the evening Desoutters were allowed to aerate it, and this they did thoroughly every time they took off! The programme ran through all methods, starting with some shock cord launches of a Zögling up to a flight by Herr Kronfeld on the Austria. Herr Kronfeld had given a demonstration before the King and Queen of the Belgians on the Wednesday before in his "Wien," and was subsequently towed from Brussels direct to Hanworth, a distance of 230 miles, via Valenciennes and Calais, by Herr Weichelt in a Klemm.

The afternoon's show had evidently been successfully advertised, because the crowd in the public enclosure was very large indeed, and we sincerely hope that what they saw left them with a greater sense of the value to be had out of gliding. We cannot help thinking, however, that there was a little too much of the shock cord stuff at the beginning, because on flat ground with no wind this is bound to a poor exhibition; and, moreover, what there was of it, was done too far up one end of the long public enclosure. It would have been far better to have had two or three demonstrations running at the same time along the enclosure and to have interspersed them with launches made by motor car. Several flights were made by this latter method, and later on the real stuff started when Herr Kronfeld, in the Wien, was towed up by Herr Weichelt in his Klemm (Siemens).

Herr Weichelt, by the way, holds the world's record for inverted flying, with a cross-country trip he made of 47 min. duration. A man who can hang inverted and control an aeroplane for so long must certainly have some-



King Alfonso enjoying the gliding and the hospitality at Hanworth. (FLIGHT Photo.)

thing very exceptional about his constitution, but we cannot imagine anything less enjoyable to the average man than to make inverted flights of even two or three minutes. However, Herr Weichelt's feat was undoubtedly an extraordinarily meritorious one, and we trust that the makers of his machine learnt something more about its capabilities from this flight.

Herr Kronfeld was able to attach himself to several large cumulus clouds when he got to a height of somewhere about 1,800 ft., and during his subsequent 1½ hours in the air was able to gain something like another couple of thousand feet. Actually, he said, he had great difficulty in remaining anywhere near the aerodrome, and could have, had he wished to do so, made a flight right over London and well into Essex, if not further, since a line of cumulus clouds which were perfect for the job stretched as far as he could see in that direction. His utilisation of the up currents to be found in these was easily seen, and Capt. Latimer Needham drew attention to this method of gaining height by broadcasting from the Lyons Tea Co.'s broadcasting van.

While Herr Kronfeld was still up, both Mr. Lowe-Wylde, on his B.A.C., and F/O. Mole, on another B.A.C.



The "Austria" which was built for Herr Kronfeld in the Segelflugzeugwerke at Kassel. The small wheels have recently been added to facilitate towing-off by an aircraft. (FLIGHT Photo.)



Mr. Lowe-Wylde on his B.A.C. and Mr. Mole on the Barbara Cartland getting ready to go up and find the clouds. (FLIGHT Photo.)

Below on the right can be seen Herr Kronfeld in the Wien just before making his flight over Hanworth. (FLIGHT Photo.)

machine which has been christened the Barbara Cartland, since it is the property of Mrs. McCorquodale, were towed up by N.F.S. Moths. These gliders are naturally not so efficient as the Wien, and, although they were able to gain a little height, they gradually lost it afterwards, and came down, having stayed up for some considerable time. Herr Kronfeld, however, continued to float round and round until eventually Capt. Max Findlay, the Chief Instructor of N.F.S., went up on a Martlet (Genet II) and "shot him down." After his landing Herr Kronfeld was presented by the Duke of Sutherland with the £1,000 cheque which he picked up for gliding across the Channel both ways during the same day, recently.

F/O. H. H. Leech gave an excellent display of well-thought-out aerobatics on the Martlet, and showed that he has evidently learnt a good deal of showmanship from his previous public shows, as all his stunts were done just in the right place in front of the crowd, where they could see him easily, and where there was no danger at all in the event of his engine cutting out. To emphasise this point he deliberately cut his engine out before the finish, and subsequently made a beautiful landing right in front of the crowd without starting up again. This form of finish does a very great deal to make the public realise that engine failure does not necessarily mean a crash, and that in point of fact forced landings resulting in crashes are the exception rather than the rule.

Ex-King Alfonso was present with a large party and appeared to enjoy Mr. Leech's display most thoroughly. As a further attraction, which was not gliding, Flt. Lt. W. E. Purdin flew the Blériot monoplane which had been seen at Hendon the previous day. On this occasion he gained quite a considerable altitude before finally landing in front of the crowd.

The last glider to do anything was Herr Kronfeld's Austria. Readers of FLIGHT will remember the illustrations of this strange-looking aircraft which we have already published, and will recollect that it has a colossal aspect ratio in the neighbourhood of 1:22. It has an amazingly flat gliding angle, and when Herr Kronfeld arrived in it, having been towed direct from St. Inglevert last Thursday evening, it took him some 30 min. to lose something like 1,500 ft., while he circled round Hanworth. Herr Kronfeld is naturally going very slowly with such a valuable



machine, and has not as yet attempted anything very spectacular with it. Figures, etc., are not therefore available. It seemed a pity, however, that he did not take it up instead of the Wien earlier in the afternoon when there was plenty of clouds to hang on to, because now he could do nothing more than circle round and land.

On Tuesday, June 30, Herr Kronfeld made what must be the first glider flight over London. He left Hanworth at 1.15 p.m. and was towed up to 1,500 ft.

In about an hour he gained another 3,000 ft., and then made his way across London at an altitude of between 1,800 and 5,000 ft., finally landing at Great Lines, an open space used as a playground, at Chatham, at 5.30 p.m., where he was given every assistance by Rear-Admiral Snagge, R.N., who commands the R.N. Barracks, and who is himself an "A" pilot of Hanworth Club.

Herr Kronfeld utilised cumulus clouds for maintaining his height, and also thermal up-currents, which at times reached 7 to 8 ft./sec.

This flight is the longest made across flat country, the previous being that made by Herr Hirth of 3 hr. 10 min. over Breslau.



The Austria amid the hay at Hanworth. (FLIGHT Photo.)



# Airport News

## CROYDON

WE have at last had a real taste of summer this last week, and everyone would welcome some sort of dress reform here—it is worse than working in a boiler house, the sun beats down in every corner. However, it is very welcome after the dreary months that have passed, although, no doubt, we shall assert the Englishman's privilege of really grouching if we get too much.

Dr. Kipfer, whom it will be remembered recently ascended in a balloon to hitherto unheard-of heights with Prof. Piccard, arrived from Brussels in the morning and returned on Monday night by the Sabena Line.

On Tuesday Miss Gower, daughter of Sir Robert Gower, who is the sitting member for Gillingham, successfully completed her cross-country flights for her "B" licence.

The Chief of the Chilian Air Force arrived from Paris on Wednesday to be present at the Air Force Display.

The Atlantic flights this week caused a certain amount of commotion, particularly so far as the Press were concerned. They were waiting at Croydon in swarms, convinced that the machines would arrive here in spite of the fact that the ultimate destinations had been given when they left U.S.A.

Capt. Stack landed here at 10 p.m. on Wednesday night after his day dash to Warsaw and back, and, still not satisfied, he continued to Heston, from whence he started the flight. Both he and Chaplin were really tired out.

Hannibal did its first passenger flights on Thursday and carried many distinguished personages. These flights were carried out under the auspices of the *Daily Mail*. This machine is now operating on the regular services and is carrying full loads in each direction. It proved its worth on Saturday, when, after about one hour's flying, oil trouble developed in one engine. The pilot, Mr. Rogers, did not worry in the least: he switched the engine off completely and carried on with the remaining three, arriving in Paris to schedule. It was a great advertisement for "Hannibal," and proves that it is a splendid and safe machine.

ment for "Hannibal," and proves that it is a splendid and safe machine.

On Friday, Herr Von Gablen, Air Superintendent of the Deutsche Luft Hansa Co., arrived by the night service. He intends spending a few days in England before returning. A Dutch military Fokker (3 Lynx) arrived from Holland, also on Friday, carrying eight Dutch officers, who had been invited over to witness the Royal Air Force Display. There has been a remarkable number of foreign private owners and visitors over for this event. The R.A.F. Display assists civil aviation tremendously.

On Saturday quite a family party arrived from Antwerp to visit Hendon. It consisted of two Moths, one carrying the father and mother and the second carrying the two sons. It struck one as decidedly modern. They returned to Antwerp the same evening. The Chief of the Dutch Air Force arrived by K.L.M., and Jean Borotra, the tennis star, arrived by Air Union, and proceeded forthwith to Wimbledon.

The week-end has been one of the busiest experienced for some considerable time. On Sunday many services were quadruplicated for the French Grand Prix, and the first machine away was "Hannibal" fully loaded at 4 a.m. "Hannibal" carried a party of racegoers from the B.A.T. Club to witness the Grand Prix and they had, from all accounts, a really marvellous time. They each paid £9, and, additional to their air journey, they had breakfast at a leading Paris hotel, car to Longchamps, and a long night of thrills in the gay city. The last machine did not return until nearly 11 p.m. The wonderful weather also brought joy to the joyriding concerns, and it was as much as they could all do to cope with the demand for joyrides on Sunday. Business is getting decidedly brisk, and one hopes that it will remain so, as the past bad weather has caused considerable financial loss to many who only have the weather to rely upon.

The traffic figures for the week were:—Passengers, 1,480; freight, 86 tons. P. B.

## AVIATION INSURANCE DEVELOPMENT

AN interesting development in aircraft insurance, and one which may have far-reaching consequences, was announced last week, when a new company was formed under the title, The British Aviation Insurance Co., Ltd. The new company, with a capital of £250,000, has, we understand, grown out of the operations of the British Aviation Insurance Group, Ltd., through which company aviation insurances have been effected for a number of years.

That the new company is one of very great importance will be gathered from a list of the companies which have subscribed the share capital. These companies are:—

Commercial Union Assurance Co., Ltd.  
Excess Insurance Co., Ltd.  
London Assurance.  
London & Lancashire Insurance Co., Ltd.  
North British & Mercantile Insurance Co., Ltd.  
Phoenix Assurance Co., Ltd.  
Royal Insurance Co., Ltd.  
Sun Insurance Office, Ltd.  
Union Insurance Society of Canton, Ltd.

together with certain of Lloyd's underwriters.

The directors will be: Mr. Colin F. Campbell, Mr. Montague Evans, Mr. Charles Hendry, Mr. Herbert Lewis, Mr. Robert McConnell, Mr. W. W. Otter-Barry, Mr. H. G. Simms, Mr. R. Y. Sketch, and Sir Arthur Worley, Bt., C.B.E. At a board meeting on June 25, Sir Arthur Worley was elected Chairman. Sir Arthur, it might be mentioned, is Managing Director of the North British & Mercantile Insurance Company.

Captain A. G. Lamplugh, who has been underwriter of the British Aviation Insurance Group for the past four years, will continue to act in this capacity. Mr. Arthur Cansdale, secretary of the Railway Passengers' Assurance Company, has been appointed secretary of the new company, whose address is Lloyd's Building, 3-4, Lime Street, London, E.C.3.

Among the risks which will be covered by the new company may be mentioned the following: Landplanes, airships, flying boats and amphibians, seaplanes, personal accident, ground or mooring risks, third party, ground and third party, specie and merchandise in transit, and airships and aircraft under construction.

### Cirrus Hermes Developments

THE Cirrus-Hermes Engineering Co. has, we are glad to hear, completed the change-over of its machinery to the new works situated in the front hangars at Croydon, and the offices will shortly follow suit. Mr. Ricardo has also entered into an agreement to act as Consultant to the company. This is particularly pleasing hearing, and opens up, we hope, a new era of prosperity for this concern, for there is no doubt that Hermes engines are now giving exceptionally good service in all parts of the world, and the difficulties the firm had, and which looked at one time rather serious, would, if they had necessitated closing

down the works, have been a very serious matter indeed to aviation in general. A world-wide service department has now been arranged, which department is, of course, run from the head office at Croydon, whose telephone number is Croydon 2410, or 2411 on Sundays. There are many service depôts in France, Belgium, Germany, Czechoslovakia, Spain, Italy, Japan, Estonia, Norway, Poland, Portugal, Australia, South Africa, Sweden, Canada, China, Mexico, Malay, Strait Settlement, New Zealand, and Burma, and the Company will be glad to send the addresses of their agents to anyone who considers making a flight to these countries.



## BRISTOL "JUPITER'S" 300 HOURS' FLIGHT TEST

**F**OLLOWING upon the series of 100 hours' full-throttle bench tests carried out on the geared "F" type Bristol "Jupiter" engines, the Bristol Aeroplane Company, Ltd., decided to submit one of their standard 490 b.h.p. Jupiter XI.F. engines to an extended endurance flight test in order to demonstrate the reliability, smooth running and economy of these engines under flight conditions. For the purpose of the test, a standard engine, selected by the Air Ministry, was installed in the Bristol type 109 machine, a large single-engined biplane of 50 feet span, and designed to carry a maximum all-up weight of 9,000 lb.

In view of the amount of information to be obtained from a test of this nature, if carried out under strict supervision, the control of the test was undertaken by the Royal Aircraft Establishment. The machine was stationed at Farnborough, and throughout the test was flown by Royal Air Force pilots nominated by the Air Ministry. As a check on the possible replacement of components, the engine was sealed by officials of the Aeronautical Inspection Directorate in numerous places.

The aircraft was delivered to the Royal Aircraft Establishment on September 12, 1930, and flying was carried out daily on all possible occasions in periods varying from 2 to 12 hours, as circumstances of weather and personnel permitted. Throughout the test, apart from taking off and landing, the machine was flown at a constant throttle setting giving 90 m.p.h. and 1,850 r.p.m., under which conditions the power output of the engine was approximately 350 b.h.p.

300 hours' flying time was completed in the following March, and during this time the only seals broken were on a magneto, after 232 hours, in order to replace a defective automatic timing coupling (not of Bristol manufacture), and to replace a set of valve rocker gear and details, due to a broken tie rod.

Throughout the test the engine ran smoothly and well, both when cruising and at full throttle. Standard Shell aviation petrol, without the addition of dope or benzole, and a standard grade of Shell mineral oil were used exclusively, the average fuel consumption working out at 20.6 gallons per hour, and the oil consumption 6.9 pints per hour. This fuel consumption may be regarded as exceptionally low, especially as the condition of the cylinders and valves at the end of the test gave no indication of injury from running in too weak a mixture.

At the end of the 300 hours the aeroplane was handed over to the R.A.E. Experimental Flying Department for Certificate of Airworthiness trials, and was then flown back to Bristol, where the engine was removed for calibration, prior to stripping and detailed examination.

The calibration tests on the Froude dynamometer revealed that the engine had maintained its power output exceptionally well, the full-throttle power at normal r.p.m. being within 2 per cent. of that developed by the engine prior to the 300 hours' flight test. This ability to maintain power after long periods of running is characteristic of Jupiter engines, and in this case was demonstrated most satisfactorily.

Finally, the seals were removed and the engine was stripped for inspection under A.I.D. supervision. It was found to be in very satisfactory condition, with the minimum of wear on the major components and a marked freedom from gumming up of piston rings.

The Bristol Aeroplane Company, Ltd., desire to acknowledge their indebtedness to the Air Ministry, to the staff at the Royal Aircraft Establishment, and to Squadron Leader W. S. Caster, M.C., the pilot responsible for flying the machine. Despite the large amount of work always in hand at the R.A.E., the 300 hours' test was carried through in short time, and considerable credit is due to all concerned.

*The Bristol Jupiter XI F, 300 Hours' Flight Test*

Component.	Average Wear during Test.
Cylinder bore .. .. .	0.0026
Piston .. .. .	0.0014
Gudgeon-pin diameter .. .. .	0.0005
Small-end bush bore .. .. .	0.0006
Wrist-pin diameter .. .. .	0.0007
Wrist-pin bush bore .. .. .	0.0005
Crank-pin diameter .. .. .	0.001
Big-end bush bore .. .. .	0.001
Big-end bush, outside diameter .. .. .	Nil.
Master rod liner bore .. .. .	0.0007
Cam-sleeve bush bore .. .. .	Nil.
Crankshaft sleeve .. .. .	Nil.
Eccentric gear bore .. .. .	0.0001
Eccentric floating bush, degrees diameter .. .. .	Nil.
Eccentric floating bush bore .. .. .	Nil.
Eccentric, outside diameter .. .. .	Nil.
Crankshaft tail bearing .. .. .	Nil.
Propeller-shaft arms .. .. .	0.0001
Bevel-pinion bushes .. .. .	0.0003
Exhaust-valve stems .. .. .	0.0007
Inlet-valve stems .. .. .	0.0004
Exhaust-valve guides .. .. .	0.0032
Inlet-valve guides .. .. .	0.0017

The general condition of the engine was excellent. As shown in the above table, the amount of wear was in no case sufficient to require replacement.

## AT BUCKINGHAM PALACE

**A**N Investiture was held by His Majesty the King at Buckingham Palace on June 25. Amongst those present were Air Marshal Sir E. Ellington (Principal Air Aide-de-Camp) and Group Captain E. Robertson (Aide-de-Camp in Waiting). The following were amongst those introduced into the presence of the King, who invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted:—

### Order of the Bath Military Division.

Knight, Grand Cross:—Air Chief Marshal Sir John Salmond.

Received the honour of Knighthood, Knight Commander:—Air Vice-Marshal Charles Lambe.

### Order of the British Empire Military Division.

Commander:—Wing Commander William Shorten, R.A.F.

Officers:—Squadron Leader George Law, R.A.F., and Flight Lieutenant Herbert Heslop, R.A.F.

**Members:**—Flight Lieutenant Frederick Bishop, R.A.F., and Sergeant-Major Glendor Marshall, R.A.F.

His Majesty then conferred Decorations as follow:—

### Air Force Cross

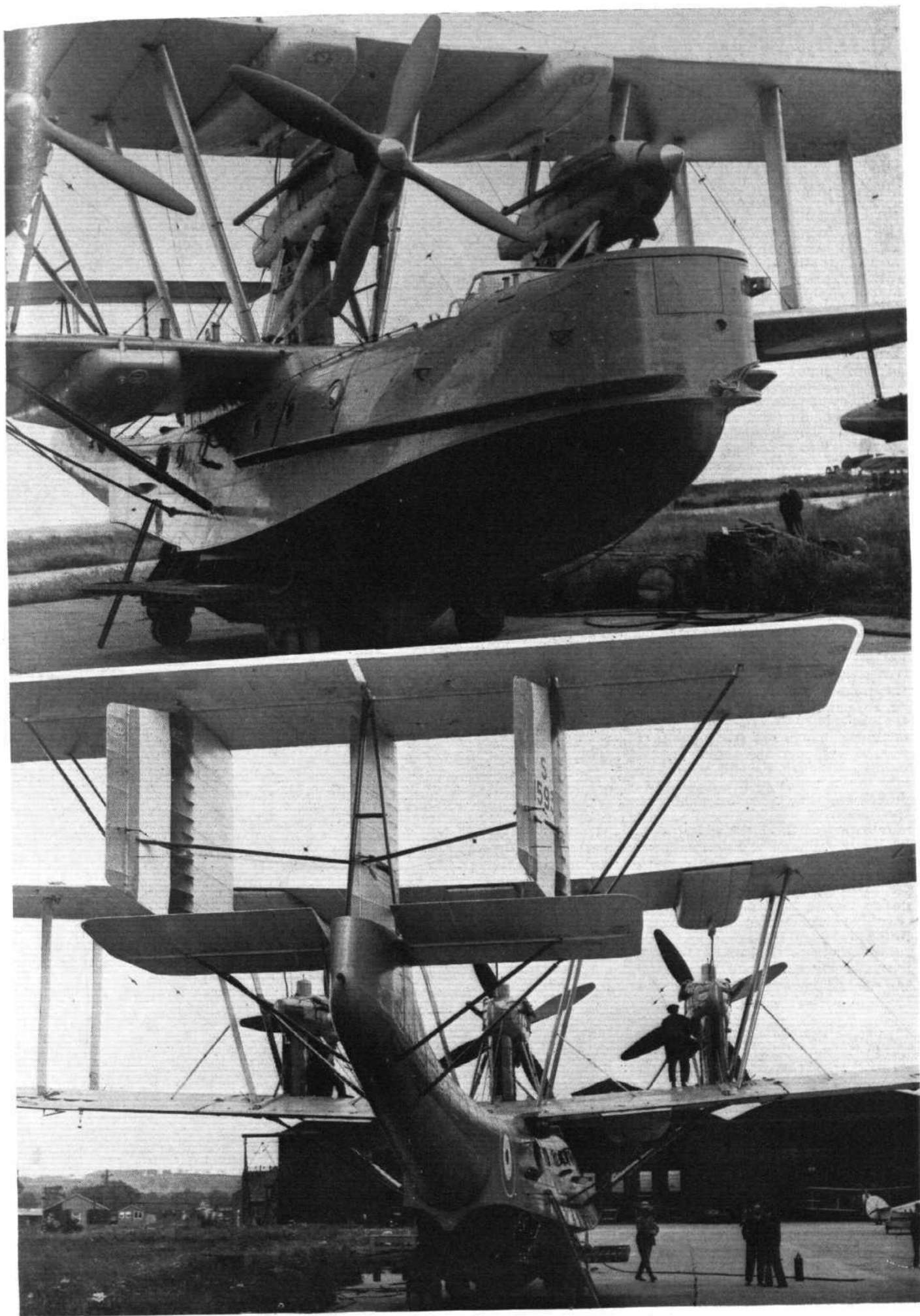
Squadron Leader Hubert Penderel, R.A.F., Flight Lieutenant James Addams, R.A.F., and Flight Lieutenant Gilbert Nicholletts, R.A.F.

### Royal Red Cross

**ASSOCIATES:**—Miss Esther Hunter, Princess Mary's R.A.F. Nursing Service, and Miss Dorothy Mansell, Princess Mary's R.A.F. Nursing Service.

### Albert Medal

Henry Leech, in recognition of his gallantry when the Airship R.101 was wrecked near Beauvais on October 5, 1930. Despite terrifying experiences in extricating himself from the blazing wreckage, Mr. Leech immediately, at grave risk, re-entered the burning mass and succeeded in disentangling a companion from the network of red-hot girders and hauled him into safety, himself sustaining burns in the process.



**LAUNCH OF A NEW BLACKBURN "IRIS":** Yet another flying boat of the "Iris" type was launched at the Blackburn works at Brough, Yorks, recently. Like previous machines of this type it is fitted with Roll-Royce "Condor" engines. Modifications have, however, been made to the lines of the hull, notably in the bows. The lower picture gives a good idea of the biplane tail and gunner's position. (FLIGHT Photos.)



# AIR TRANSPORT

## A FLYING TRIP IN THE BELGIAN CONGO

By LIEUT.-COLONEL H. E. CROCKER, C.M.G., D.S.O.

**D**URING my recent visit to the Belgian Congo, I had to wait some time at Leopoldville, near the mouth of the Congo River. I took the opportunity of going for a trip by aeroplane for some distance towards Elizabethville, and have seldom had a more delightful experience.

The Flying Service is controlled by the "Sabena," or La Société Anonyme Belge d'Exploitation de la Navigation Aérienne, to give it its full title. It has its headquarters at Brussels, and deals with the air traffic, both in Europe and in the Congo.

From Leopoldville there is a main aerial route to Elizabethville, in the southern extremity of the Congo, via Bandundu, on the Kasai River, Port Francqui and Bukama. The distance is about 2,000 kilometres and the journey takes two days, except in the hot weather, when the outward journey, owing to adverse winds, usually takes three days. The return journey to Leopoldville never takes more than two days.

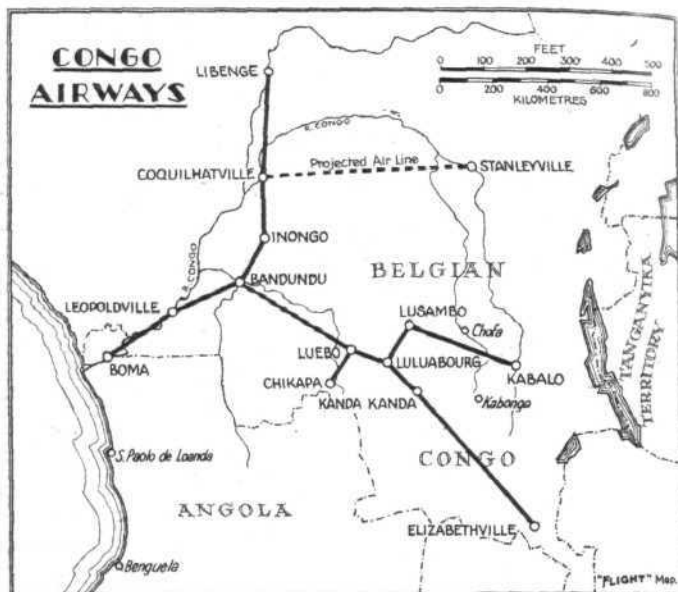
From Leopoldville to Elizabethville there is, in addition, a rail and river route. Large river steamers ply as far as Port Francqui, the present terminus of the railway through Elizabethville to the Cape. This journey, which depends on the condition of the river, takes about a fortnight.

I left Leopoldville one morning in a Handley Page machine with a Rolls-Royce central engine and two Siddeley Puma lateral engines. There is accommodation for ten passengers in these large planes, or for one ton of cargo. On this trip there were only two other passengers besides myself, and we carried a large consignment of mail.

We swung away across the forest till we passed over Bandundu, on the Kasai River, which flows into the Congo at Kwamouth, and then turned eastwards and followed the river as far as Port Francqui. For the first hundred miles the banks are fringed with jungle, after which we were flying over the dense tropical forest of the Congo basin. Although I could not see them, the forest, especially to the south of the Kasai River, is intersected in all directions by streams and small rivers, which all flow into the Kasai.

It happened to be the winter and the rivers were flooded by heavy rains. The Kasai swept along in a mighty flood several miles wide, carrying everything before it. Owing, however, to extensive sandbanks, it would be unsuitable for hydroplanes. A forced landing in this inhospitable district would be a matter of difficulty and danger. The only landing places between Leopoldville and Port Francqui are at Bandundu and Eole.

Port Francqui is rapidly becoming one of the largest ports on the river, and large extension works are being carried out to deal with the increasing volume of river-



A sketch map showing the air lines operated by S.A.B.E.N.A. in Belgian Congo.

borne trade. It is at present the terminus of the railway from the Cape, but a scheme is on foot to extend the line to Leopoldville, and thus complete the railway from the Cape to Leopoldville.

This railway would prove of great advantage to the aviation service and enable their stores of petrol and oil to be brought up independently of the river, which is uncertain at the best of times. In the hot weather, when the river falls considerably, it is no uncommon thing for the heavy barges to get stuck on the sandbanks, where they sometimes have to wait till the autumn rains before they can be refloated.

At Port Francqui we turned south-east and followed the railway line, past the aerodrome at Luebo. We landed for the night at Luluabourg, where I put up at the rest house close to the aerodrome. Since leaving Port Francqui we had been flying over dense forest, through which the railway and rivers twist and wind, barely visible from the air owing to the impenetrable undergrowth.

We started off early the next morning, still following



The Handley Page W.8.F. which is used on the Congo air services. It has a central 360 h.p. Rolls-Royce "Eagle" engine, and two 240 h.p. Siddeley "Puma" wing engines. (FLIGHT Photo.)



the line of the railway, and passed over the aerodromes at Kanda, Kanda and Kamina, and landed at Bukama, where I completed my journey. The country in this sector is more open, and I saw vast prairies intersected with patches of forest.

Bukama is another thriving port, where large areas of foreshore are being enclosed to form quays where steamers with their enormous barges can lie alongside. Being the junction of the air, rail and river routes, it is rapidly assuming great importance. Passengers from the Congo, the Cape, East Africa and Cairo meet and pass. The station has not yet been completed, and there is no hotel or accommodation for passengers. This will, however, be arranged at an early date.

When I was in the Congo in 1930 there was a flying service from Matadi, the port at the mouth of the Congo to Leopoldville, and on to Coquilhatville. The Matadi-Leopoldville service is, however, now being discontinued, and the service is being extended from Coquilhatville to Stanleyville, far up the Congo, and, in addition, there is to be an extension to Libenge, in the north-west angle of

the Congo, where it would probably connect with the French aviation service.

The scheme for an eastwards extension from Stanleyville to Kilo, in the north-east of the Congo, and on to Lake Albert has been dropped.

The aviation service in the Belgian Congo plays an important rôle in the development of the country. It enables maps to be made of road and rail routes from aerial photographs, and it also permits doctors and medical stores to be rushed to places where there is an outbreak of disease. Patients can also be brought in to hospital.

I was given a practical demonstration of the far-reaching use of aeroplanes while I was in the Congo. A woman was bitten by a mad dog, and there was no serum for treating her in the country. In response to a cablegram, an aviator flew from South Africa with the required treatment and saved her life.

It is to be expected that in the course of a few years the flying routes will be considerably extended to conform with the development that is taking place throughout the Belgian Congo.

#### Australian National Airways

It is reported that, having failed to obtain a Government subsidy, Australian National Airways has announced the suspension of the Sydney-Brisbane, Sydney-Melbourne and Melbourne-Launceston air services.

#### French Air Lines in Africa

ACCORDING to the Paris Correspondent of the *Morning Post*, the Government's project for reorganising the African air service has been adopted by the French Chamber. The scheme was formed after the failure of the private company which formerly exploited the Colonial air routes. It is virtually a State enterprise, the Treasury reserving a preponderant portion of the shares. This was made necessary, it was explained, by the desirability that the State should control the important new line of communication with Madagascar.

#### Civil Aviation in India

FURTHER to the report that the Government issued an order to cease all expenditure on civil aviation in India, it is now reported that the wireless and meteorological services are likely to be exempted from the operation of the order. On the other hand, a British firm which was tendering for the ground lighting of civil aerodromes has been informed that the whole question of contracts must be held in abeyance for some time. It is stated that an independent decision may be made on the maintenance of facilities on the section between Rangoon and Calcutta, which is not properly part of the Indian State air service programme.

#### A New Polish Air Service

THE Warsaw Correspondent of *The Times* states that a Polish air route connecting the Baltic with the Black and Aegean Seas was inaugurated by the Minister of Communications at the Warsaw Airport on June 27. There will be services between Warsaw and Salonika three times a week in each direction with intermediate stops at Lwow, Cernauti, Galatz, at the mouth of the Danube, Bucharest,

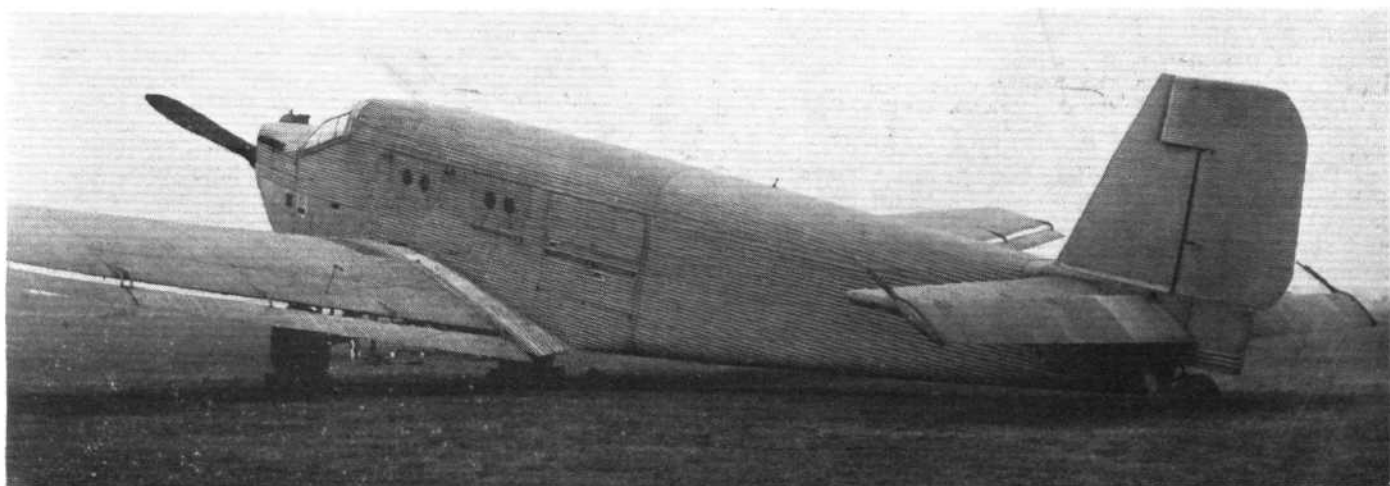
where a night will be spent, and Sofia. On the northward journey there will be an air connection to Danzig, enabling the distance from Bucharest to the Baltic coast to be flown in a single day, but south-bound passengers from Danzig and places farther north will either fly to Warsaw and spend a night there or travel from Danzig by night train. The service between Warsaw and Bucharest has been flown since the beginning of the present flying season by aeroplanes of the Lot Company (Polish air lines), which is also responsible for the extension to Salonika. During the inaugural ceremony the Minister of Communications handed a flask filled with Baltic water to the pilot of the first machine, to be presented to the Greek Minister of Aviation.

#### Air Mail to Indo-China

THE Postmaster-General announces that the French weekly air service to Saigon is now available for all classes of correspondence, except parcels, posted in this country for French Indo-China. Packets may be registered, but not insured. The time of transmission to Saigon is expected to be 11 days as compared with about 27 to 30 days by the ordinary route. The combined postage and air fee is 1s. 4d. per half ounce, and the latest time of posting in the special air-mail letterbox outside the G.P.O., London, is 6.30 a.m. on Wednesdays, and correspondingly earlier elsewhere.

#### Focke-Wulf "Ente" on Tour

THE Focke-Wulf "Ente," or tailless machine, described in *FLIGHT* of January 2, 1931, has now passed all its technical tests, and has been returned to the Focke-Wulf firm, of Bremen, who sent it on a tour to various cities. From Bremen the "Ente" made flying visits to Berlin, Hamburg and Kiel, and recently it visited Copenhagen, where not only the general public, but the Danish authorities, were much interested in the unusual craft. We are informed that there is a very good chance of the "Ente" visiting London in the near future.



AN AERIAL LORRY. Three-quarter view of the Ju. 52, the new Junkers freighter. The tail wheel and the mounting of the elevator above the tail plane should be noticed; this would appear to have a sort of reverse slot-like effect.

# AIRISMS FROM THE FOUR WINDS

## The Flying Princes

THE Prince of Wales flew from Windsor to Eastbourne on June 30 and spent a very busy day there. Prince George has been touring the west country, and has also made use of aeroplanes. He left Hendon aerodrome on June 24 for Torquay, and from there flew on in a seaplane to St. Austell in Cornwall. Another flight took him to Looe. On the 26th he flew from Torquay to Newquay in a Royal Air Force machine, and opened a new hospital there.

## Great Flights by Stack and Chaplin

CAPT. NEVILLE STACK and Mr. J. R. Chaplin are making aeronautical history with their Vickers-Napier two-seater. On June 24 they flew from London to Warsaw and back in 15½ flying hours at an average ground speed of 130 m.p.h.—a truly amazing feat. They left Heston at 4.20 a.m. and arrived at Warsaw at 12.30 p.m. The return flight commenced at 2.34 p.m., and Croydon was reached at 9.45. The aeroplane was built by the Vickers company at Weybridge, and has been modified to carry mail matter as well as two pilots. The engine is a 530 h.p. Napier. On June 29 the same two pilots set off again on an attempt to fly to India and back in six days. Starting from Lympne early, they reached the San Stefano aerodrome at Constantinople after a flight of 12 hours 35 minutes. At 5.30 a.m. next morning they started off again for Aleppo, but after arriving there in the afternoon, they decided to make an effort to reach Baghdad that evening—a distance of 1,470 miles from Constantinople.

## A Race Round the World

MR. FUKUMA and Mr. Shingu, two Japanese journalists, are taking part in an interesting race round the world, in opposite directions, using regular passenger air services. They both met at Croydon aerodrome on June 25. Mr. Fukuma, representing the *Tokio Asahi*, left Tokio on June 15 and reached Croydon at 4.15 p.m., June 25, the eleventh day after setting out. His westward journey was made with halts at Seoul, in Korea, Novosibirsk, in Siberia, Moscow and Berlin. The stage between Seoul and Novosibirsk was made by the Trans-Siberian railway; otherwise the whole distance from Japan to England was covered by air, including a flight of 24 hr. between Moscow and Berlin. Mr. Fukuma left Croydon at 8 o'clock on June 26 for Paris, and will travel from Cherbourg to New York in the *Aquitania*. Mr. Sutemaru Shingu, who represents the *Osaka Asahi*, left Osaka on June 6. Travelling by the reverse route to that followed by Mr. Fukuma, he sailed from Tokio to Victoria, British Columbia, and flew by way of Seattle, Salt Lake City, and Chicago to New York. He crossed the Atlantic in the *Europa*, reaching Southampton on June 25 and London at 3.30 p.m. He motored straight out to Croydon, and after a conversation with Mr. Fukuma on the aerodrome, left at 5 p.m. by Imperial Airways liner for Paris, his next stage being Berlin.

While in London Mr. Fukuma presented a letter of greeting to the Lord Mayor from the Mayor of Tokio. The Lord Mayor handed Mr. Fukuma a letter to the Mayor of Tokio, in which he said:—"Our two countries have long been on the friendliest terms, and we view with much admiration the progress made by the Japanese people in the march of civilisation; we remember with pride and satisfaction the happy visit paid to the City of London by their Royal Highnesses the Prince and Princess Takamatsu of Japan."

## Graf Zeppelin

ON June 30 the German airship *Graf Zeppelin* left Friedrichshafen with 12 passengers on board on a trip to Iceland. The airship passed over Cromer in the afternoon and then flew along the Yorkshire and Durham coasts. After leaving and taking in mails at Reykjavik, it is expected the airship will return, via Norway, to Friedrichshafen to-day.

## The Danes Get Across

THE two Danish airmen, Holger Holris and Otto Hillig, who, as briefly recorded last week, left Harbour Grace, Newfoundland, on June 24, in a Bellanca monoplane to fly across the Atlantic to Copenhagen, have succeeded—after a certain amount of anxiety as to their whereabouts towards the end of the crossing. It appears they completely lost their bearings, and on making land thought they were over Spain. They came down to find out where they were, and actually landed at Krefeld, near Düsseldorf, at 5.30 p.m. on June 25. After a short rest, and replenish-

ing their practically empty fuel tanks, they left for Copenhagen, landing for the night at Bremen. Copenhagen was reached next afternoon, and they were given a triumphal welcome on landing at the aerodrome.

King Christian of Denmark has awarded Capt. Holris the Order of the Knight of Dannebrog.

## Gen. Balbo has another mishap

GEN. BALBO, Italy's energetic Air Minister, met with another adventure during a 12-day aerial tour round Tripolitania. When he was heading homewards across the Tyrrhenian Sea, N. Sicily, he had to make a forced landing in rough sea 20 miles N.E. of Ustica. It was not until two hours later that he was picked up by a passing steamer and taken to Naples. From here he continued his journey in another machine to Rome, where he reported to Signor Mussolini according to schedule!

## French Airwoman's Record

Mlle. MARYSE BASTIE took off from Le Bourget in her 40-h.p. Farman monoplane on June 28 with the object of beating the long-distance record for light planes. She succeeded in reaching Nizhni-Novgorod—a distance of about 1,800 miles.

## Vicomtesse de Sibour's Eastern Tour

VICOMTE AND VICOMTESSE DE SIBOUR, who left Le Bourget by aeroplane on June 16 for the Far East, reached Peking on June 25 from Mukden after flying across Siberia.

## A.F.C. for Mr. C. W. A. Scott

It was announced in the *London Gazette* for June 29 that the King has been graciously pleased to approve of the award of the Air Force Cross to Mr. Charles William Anderson Scott in recognition of the distinguished services rendered to aviation by his recent flights between England and Australia.

## Col. Sempill Honours Channel Airmen

COLONEL THE MASTER OF SEMPILL gave a dinner party at the Carlton Hotel on June 27 in honour of M. Blériot, who crossed the Channel 22 years ago on a Blériot monoplane, and of Herr Kronfeld, who crossed it on a glider a week ago. The others present were:—Mme. Blériot, Air Commodore and Mrs. Weir, Mlle. Lippens, and the Hon. Mrs. Forbes-Sempill.

## Air Aide-de-Camp to the King

THE Air Ministry announces the appointment of Group Captain Francis Knox Haskins, D.S.C., as Air Aide-de-Camp to the King, vice Group Captain Edmund Digby Maxwell Robertson, D.F.C., who vacates the appointment on promotion to air rank.

## The B.R.C.S. Air Ambulance

AT Dorking, on June 27, Princess Mary, on the occasion of the inspection of the Surrey detachment of the British Red Cross Society, also inspected the Desoutter ambulance which was presented to the division by an anonymous Croydon donor. The machine flew overhead and dropped a bouquet—which, unfortunately, caught in the tail.

## League of Nations Air Fleet

THE creation of a League of Nations air fleet and the abolition of all other air fleets was advocated by Viscount Cecil in a talk with a number of delegates to the Rotarian Convention at Vienna.

## Credit where Credit is due

IN the special supplement to last week's issue of *FLIGHT*, which dealt with the history of Britain's Air Arm, occurred an omission which we hasten to point out. The photographs of the Royal Aircraft Factory machines, BE, FE and SE series, were Official Crown Copyright photographs. Practically all the other photographs published were *FLIGHT* Copyright.

## San Marino is Air-minded

THE pocket republic of San Marino, high up in the Apennines, has now joined the ranks of the air-stamp issuing countries of Europe. Presumably they are intended for use on letters transmitted over the Italian air lines, as, so far as is known, San Marino itself has no air service. Handsomely engraved and printed in England by Bradbury, Wilkinson & Co., after the design of Prof. E. Federici, they show a panoramic view of Monte Titano, on which the tiny state stands, with an eagle flying overhead and supporting a scroll charged with the inscription, "Posta Aerea." The denominations and colours of these stamps are:—50 centesimi, green; 80 c., red; 1 Lira, light brown; 2 L., mauve; 2 L. 60 c., pale blue; 3 L., grey; 5 L., olive; 7 L. 70 c., dark brown; 9 L., orange; and 10 L., blue.





## MOTH TRAINER

The alterations to the normal metal-fuselage "Gipsy-Moth" which have been made in producing the new "Moth Trainer" consist mainly in shifting the rear lift wire attachment to the forward wing root, in order to give free exit from the front cockpit, in increasing the cockpit areas, in fitting four doors, and in taking the exhaust pipe away from the side and pointing it downward under the nose

**E**CONOMY in flying training equipment is the keynote upon which the design of the new Moth Trainer, recently produced by the De Havilland Aircraft Co., Ltd., is based. The normal metal-fuselage Gipsy Moth was already fairly suitable for training purposes, and the modifications necessary to make it entirely suitable for modern training requirements were not of a far-reaching nature from the constructional point of view. Consequently the De Havilland Company has been able to put on the market, at really low cost, a new training type suitable for modern conditions. That this is no idle claim is proved by the fact that the new Moth Trainer is available at prices below £1,000, the actual price varying according to the additional equipment which it is desired to fit, and which is optional.

As a variant of its normal form as a landplane training machine, the Moth Trainer can also be supplied as a twin-float seaplane, and used for seaplane training (at extra cost, of course), or with skis instead of wheels for winter training in countries where snow-covered aerodromes or frozen lakes are the rule rather than the exception. Moreover, the three types of undercarriage are interchangeable, so that the machine can always be fitted up to suit the season of the year, using the wheel undercarriage in the summer and the ski undercarriage in the winter.

It is, of course, well known that De Havilland service exists in nearly every civilised country in the world, and, owing to the fact that so many of the components of the Moth Trainer are identical with those of the standard Gipsy Moth, purchasers of the Moth Trainer can be assured that spares are always readily obtainable, and at low cost. Thus, not only first cost, but upkeep and maintenance costs, should be low for schools using the new school machine.

Although flying training is the function which the Moth Trainer has primarily been designed to fulfil, it has been specially designed also to carry out many other duties by means of additional equipment, which can be readily fitted without modification to the main structure. These duties include Advanced Training, Fighting Training, Bombing Training, Wireless Training, and Training in Photography. The machine has been considerably strengthened, and as a result the permissible Certificate of Airworthiness weight for aerobatics has been raised from 1,550 lb. (704 kg.) to 1,640 lb. (746 kg.), and for normal flying the permissible all-up weight has been increased from 1,750 lb. (796 kg.) to 1,820 lb. (827 kg.).

These increases in the permissible all-up weight not only enable the extra equipment to be carried, but the Moth Trainer is made nicer to handle, even at the extra weight, by fitting wings of a completely new section, so designed

that, although speed and climb are not adversely affected in any way, the stall is less abrupt and the resultant spin is slower.

### Special Features

Among the more important modifications made in producing the Moth Trainer, mention may be made of the arrangement of the lift wires. It will be recollected that in the normal Gipsy-Moth the rear lift wire is in the plane of the rear spars. This means that the wire rather gets in the way if, in an emergency, the occupant of the front cockpit is obliged to leave hurriedly, as, for instance, in jumping with his parachute. There is always a risk that some loose portion of clothing or equipment may catch on this lift wire and cause a delay at a time when every second is likely to count. To avoid this possibility, the rear lift wire in the Moth Trainer has been brought forward to the front spar wing root, where the lower portion of the wire is in front of the front cockpit, and thus right out of the way.

Further to facilitate exit from the front cockpit, a deeper type of door has been fitted, so that the occupant can now very easily step straight out on to the lower wing. These deep doors are fitted on *both* sides, enabling a rapid exit to be made from either side. This point is of great importance, since it is easy to visualise conditions under which it would be relatively easy to get out on one side of the machine, but impossible on the other. Thus, the addition of the second door may be regarded as a very real safety measure.

The fitting of doors in both sides of the fuselage brought up another problem. The exhaust pipe in the normal Gipsy-Moth runs along the port side of the fuselage. This would obviously interfere with the use of the door on that side, and so in the Moth Trainer the exhaust pipe has been shortened, and is bent down under the nose of the machine. In this position the exhaust pipe is not in the way, and, although the noise is possibly slightly greater when heard from a point outside the machine, in the cockpits there is no noticeable difference in noise.

In a training aircraft, as, indeed, in all aircraft, view is an important consideration, and as the number of aircraft increases, the subject of view will assume greater and greater importance. By careful experiment and the application of experience, it has been found possible, in the Moth Trainer, to make certain detail alterations which have resulted in a much improved view from both seats. The view from the back seat has been greatly improved in an upward direction by cutting away the trailing edge of both top wings at the root end fittings. Biplane construction normally restricts the upward view from the front



seat. In the Moth Trainer this disadvantage has been reduced a great deal by the fitting of a mirror at a suitable angle into the engine cowling, immediately behind the engine. This mirror was not in place when our photographs were taken, and is not, therefore, shown in the accompanying pictures. The use of mirrors has also been extended to the pilot in the back seat. A small mirror is fitted at the side of the front windscreen. In this mirror the instructor and pupil can see each other, thus giving a feeling of closer contact.

The seats in both cockpits are specially designed to accommodate the Irvin seat type parachutes, in conjunction with which the new Irvin harness of the "quick release and adjustment" type may also be used.

Structurally, the Moth Trainer follows exactly the same lines as the normal Gipsy-Moth. That is to say, the fuselage is a welded steel tube structure, while the wings and tail are mainly of wood construction.

The engine fitted in the Moth Trainer is the Gipsy II, of 120 b.h.p., and the petrol tank forms, as in the older type, the centre-section of the top plane.

For inverted flying the Gipsy II in the Moth Trainer is fitted with the well-known De Havilland scheme, which consists in fitting a tray in the engine sump, which, functioning on the unspillable inkpot principle, prevents oil from flooding the cylinders when the machine is on its back. If desired, the engine can be made to fire in the inverted position by the provision of a mechanical pump, which delivers petrol under pressure to the inlet manifold.

An undercarriage of the divided type is fitted, in which the telescopic legs have shock absorbers in the form of rubber blocks working in compression. Special low-pressure Dunlop landing wheels and tyres are fitted, and, in conjunction with the travel provided by the stroke of the telescopic legs, practically eliminate all risk of minor damage due to heavy landings, such as are inevitable at training centres where pupils are doing their first few hours of solo flying. A special feature is that these wheels run on ball bearings, which require practically no attention, and which eliminate shake and rattle.



**NO WIRES IN THE WAY:** This illustration shows how the shifting of the lift wire attachments to the front has made it possible for the occupant to escape by parachute in case of emergency. (FLIGHT Photo.)

#### Additional Duties

It has been said that, in addition to its main function of a flying training machine, the Moth Trainer can be used for instruction in fighting, bombing, wireless, photography, etc. For these purposes the appropriate equipment is added to that used for ordinary flying training, which includes a full range of instruments fitted in each cockpit, and full dual control, with duplication of control column, rudder bar, tail-trimming lever, throttle and ignition switches.

The camera gun is the recognised method of instruction in aerial fighting, and in the Moth Trainer provision has been made for mounting a service type camera gun, with appropriate sight, as shown in one of our photographs.

For instruction in bombing a special bomb rack, carrying four 20-lb. bombs, is fitted under the fuselage. Apart from its use for training, the Moth Trainer can be used for light offensive operations. An example of this was



**THE MOTH TRAINER:** In this three-quarter rear view may be seen the camera gun mounted on the port side of the fuselage, and the sight placed above the deck fairing. (FLIGHT Photo.)



**EASE OF INGRESS AND EGRESS:** Larger doors have been fitted to the Moth Trainer, so that in emergency both occupants can get clear with their parachutes. (FLIGHT Photo.)

provided by the fleet of military-type Moths supplied to the Government of Iraq some little time ago. These machines were fitted with bomb racks, and carried in addition complete wireless transmitting and receiving equipment, including airscrew-driven electric generator. A Vary pistol was also a part of the equipment, while the Iraq machines had, in addition to their already heavy load, to carry an extra 10-gallon petrol tank, a 2-gallon drinking-water tank, and airtight ration containers in both cockpits. An aerial camera was fitted in the floor of the

forward cockpit, while the wireless apparatus was installed in the rear cockpit.

#### Performance

The Moth Trainer carries a British Air Ministry *Aerobatic* Certificate of Airworthiness, allowing an all-up weight of 1,640 lb. (746 kg.). With instructor and pupil both wearing parachutes, all equipment, full tanks, and a camera gun for fighting training, the figure of 1,640 lb. leaves a considerable margin, which may be used for personal gear or special equipment.

The following performance figures relate to the Moth Trainer at a gross weight of 1,640 lb.

Full speed at ground level, 106 m.p.h. (171 km./h.); full speed at 5,000 ft. (1,525 m.), 101 m.p.h. (162.5 km./h.); full speed at 7,000 ft. (2,130 m.), 98 m.p.h. (158 km./h.); full speed at 10,000 ft. (3,050 m.), 90 m.p.h. (145 km./h.); stalling speed, 45 m.p.h. (72.5 km./h.).

The length of run to take-off is 160 yards (144 metres), and the time to take-off is 11 seconds.

The length of run on landing is 135 yards (120 metres). The best gliding angle is 1 in 7.5.

At ground level the rate of climb is 730 ft./min. (3.7 metres per second), while the times to 5,000 ft., 7,000 ft., and 10,000 ft. are 8.5 min., 12.5 min., and 22.5 min. respectively.

The service ceiling (*i.e.*, altitude at which the rate of climb is 100 ft./min.) is 13,800 ft. (4,200 metres), and the absolute ceiling is 15,900 ft. (4,850 metres).



**FOR OFFENSIVE DUTY:** Four 20 lb. bombs suspended below the fuselage. This illustration also shows the new exhaust pipe arrangement of the Moth Trainer. (FLIGHT Photo.)





# CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

## THE R.A.F. DISPLAY

[2753] The R.A.F. Pageant is over and I read in the daily Press that 160,000 people saw this brilliant spectacle in comfort. May I add a protest, however, on behalf of the many who, after paying a high price for admission, were able to see less than those who remained outside, and that under conditions of intense discomfort.

My personal knowledge is confined to the 5s. enclosure, where the accommodation was ridiculously inadequate. I entered this enclosure shortly after 2 p.m., only to find myself one of thousands unable to find seats of any description. The car parks were crowded with these spectators who, resigned to the knowledge that they could witness only that part of the display which took place immediately overhead, were anxious only to find a spot where they might rest on the grass in spite of the heaps of debris left behind by the spectators of the previous day.

Their "comfort" was short-lived. Before the official programme commenced, these parks were naturally filled with cars, and these unfortunate spectators were herded back on to a hot dusty "road" immediately below the main stands, where they were continually disturbed by official cars and choked by dust-laden fumes.

The fact that at 3 p.m. it was impossible to obtain minerals of any description in this enclosure only goes further to prove that no attempt had been made to cater for a large attendance, though the weather of the previous days held out every prospect of a record crowd.

I submit that it would have been a simple matter to have acquainted the public at the turnstiles that standing room only was available, while anyone who made the one mile per hour journey from the main exit to Colindale Station at the close of the proceedings will agree that just as the main programme was an achievement of perfect organisation, so were the arrangements for the visiting public a triumph of disorganisation.

I feel certain that I am voicing the thoughts of many keen followers of aviation when I say that I have made my last visit to Hendon, and instead of taking its place amongst the memories of happy afternoons spent at provincial air pageants, last Saturday's experience will remain an unhappy nightmare.

Flying is rapidly gaining its rightful place in the public interest; the Pageant authorities with their "stands" which would afford small credit to a travelling circus are going the right way to destroy that interest.

In conclusion, I should like to pay tribute to the extreme courtesy of all ranks of the R.A.F. with whom I came in contact—they did their utmost against impossible odds.

A. G. RYDER.

Hungerford,  
June 29, 1931.

## THE FIRST TO GLIDE THE CHANNEL

[2754] I note your remarks in this week's issue of FLIGHT, under the heading of "Gliding," and I would like to call your attention to page 577 of this issue with reference to Mr. Lissant Beardmore's recent flight across the English Channel.

I note you state in your issue that "up to the present there has been no mention of any special observers of the flight, but possibly these will come forward later."

I am forwarding with this letter copy of an affidavit, which I think is self-explanatory. I trust that you will see your way clear in the next issue to put these facts before your readers, as there is no reason at all why we should leave any doubt in the minds of your readers as to the legitimacy of this flight.

For your interest, the British Gliding Association have decided to recognise this flight, and I understand that they will be issuing a certificate to Mr. Beardmore.

London, W.2.

p.p. O. D. PHILIPS.

June 29, 1931.

## A Brooklands Re-Union

CAPT. H. D. DAVIS, Managing Director of the Brooklands School of Flying, is planning a re-union of pre-war Brooklands pilots, to be held in July. It is hoped that it will be possible to make it coincide with one of the more important motor-racing fixtures. All those who piloted

## The Affidavit

"I, Osborne David Philips, of 'The Marches,' Epsom Road, Leatherhead, hereby testify that on the nineteenth day of June, 1931, I accompanied Mr. R. O. Roch in his 'Lynx' Avro aeroplane (G-EBHD) at 4.10 in the afternoon, and observed Mr. Lissant Beardmore being towed in his 'Professor' sail-plane to a height of about ten thousand feet over the English coast.

"During the ascent we met several banks of clouds, and after leaving Lympne aerodrome at about six thousand feet, we travelled along the English coast in the direction of Dover. Further banks of clouds were met.

"Mr. Lissant Beardmore's sail-plane was equipped with a device enabling him to release his end of the cable when he required to do so. The 'Lynx' Avro in which I was flying was equipped with a quick release, and also a winding mechanism enabling me to wind in the cable when Mr. Beardmore released. I was in constant touch during the flight by telephone with Mr. Beardmore; earphones were fixed to my helmet.

"We passed somewhere over Dover and headed up the coast, and I then lost sight of land due to clouds. About five minutes after this, Mr. Lissant Beardmore telephoned me that he was about to release the cable. There were clouds obstructing my view of land, but we were without a doubt somewhere over the English coast, a little to the east of Dover. I signalled to the pilot that all was clear, and to make for the French coast.

"I then started to wind up the cable, which took me from 30 to 35 minutes. When we arrived over the aerodrome at St. Inglevert, France, about 40 minutes later, I observed that Mr. Lissant Beardmore had landed in his sail-plane at the edge of the aerodrome."

"June 29, 1931."

[With regard to the above, we have communicated with the B.G.A., and that body inform us that they have no knowledge of any official observer or official recognition of Mr. Beardmore's flight, and the following letters, copies of which they have sent us, are self-explanatory.—ED.]

[COPY.]

Ref.:—LYM/GEN/14.

Lympne Air Port, Kent.

The Secretary,  
The British Gliding Association,  
44A, Dover Street, W.1.

DEAR SIR,—In reply to your letter of the 22nd inst., I have to inform you that the towing aircraft and Mr. Beardmore's glider took off from Lympne at 1700 hours. They were gaining height over the aerodrome until 1730 hours, when they moved off in a S.S.E. direction.

The time of arrival at St. Inglevert—1803—is the time received from Croydon by land line, having been transmitted by W/T to Croydon.

Certified true copy of message received is attached.

Yours faithfully,

(Signed) SIDNEY DEACON

A.O. i/c Lympne Air Port.

June 23, 1931.

[COPY.]

To:—Croydon and Lympne.

From:—St. Inglevert.

G-EBHD and glider arrived 1803.

Certified true copy.

(Signed) SIDNEY DEACON

A.O. i/c Lympne Air Port.

June 23, 1931.

machines at Brooklands up to the outbreak of war are invited to communicate with Capt. Davis. The entertainment will include a dinner and dance in their honour, and it is hoped to bring to light many almost forgotten pioneers. Capt. Davis himself started his career at Brooklands when he ran away from school to join Col. Cody.

# THE ROYAL AIR FORCE

## HALF-YEARLY PROMOTIONS

THE Air Ministry announces:—

The undermentioned promotions are made with effect from July 1, 1931:—

### General Duties Branch.

*Air Commodores to be Air Vice-Marshals:* Frederick William Bowhill, C.M.G., D.S.O.; Charles Stuart Burnett, C.B., C.B.E., D.S.O.

*Group Captains to be Air Commodores:* Cuthbert Tre-lawder Maclean, D.S.O., M.C.; Edmund Digby Maxwell Robertson, D.F.C., A.D.C.; Richard Charles Montagu Pink, C.B.E.; Henry Meyrick Cave-Brown-Cave, D.S.O., D.F.C.; Henry Le Marchant Brock, D.S.O.

*Wing Commanders to be Group Captains:* William Charles Hicks, A.F.C.; Hon. Laurance John Evelyn Twistleton-Wykeham-Fiennes; John Charles Quinell, D.F.C.; Andre Adolphe Walser, M.C., D.F.C.; Sydney William Smith, O.B.E.; Lionel Douglas Dalzell McKean, O.B.E.; Franks Lubbock Robinson, D.S.O., M.C., D.F.C.; Charles Frederick Algernon Portal, D.S.O., M.C.; John Stanley Travers Bradley, O.B.E.

*Squadron Leaders to be Wing Commanders:* Ralph Towleron Leather, A.F.C.; John Henry D'Albiac, D.S.O.; George Brindley Aufrere Baker, M.C.; Roy Maxwell Drummond, D.S.O., O.B.E., M.C.; Arthur Noel Gallehawk, A.F.C.; Edward Radclyffe Pretymann, A.F.C.; Arthur Coningham, D.S.O., M.C., D.F.C., A.F.C.; Eustace Osborne Grenfell, M.C., D.F.C., A.F.C.; Forster Herbert Martin Maynard, A.F.C.; Wilfrid Herbert Dolphin; Oswyn George William Gifford Lywood, O.B.E.; Douglas Iron, O.B.E.; Arthur Trafalgar Williams, O.B.E.; Francis John Linnell, O.B.E.

*Flying Officers to be Flight-Lieutenants:* James Samuel Wilkins; Hammon Jack Paine; Kenneth Cordell McKenzie,

M.B.E.; Matthew Charles Head; George Lacey; Ernest Parrett; John Frederick Tadman, C.G.M.; Charles Thomas Johnson; Charles Henry Johnson; Leslie Ewart Goodman; Herbert John Brown; Alexander Blackwell; Thomas Owen Oakes; James Edwin Buckland; Sidney Upton; John Pidler Hinks; Lorenzo Thomas Kerry, M.C.; John Henry Forrest Burroughs (Lt., R.N.); James Ian Robertson (Lt., R.N.); Aylmer Maurice Rundle (Lt., R.N.).

### Store Branch.

*Squadron Leaders to be Wing Commanders:* Francis George Maxwell Williams; Thomas Fawdry, M.B.E.

*Flight-Lieutenants to be Squadron Leaders:* Maurice Jewison James, M.B.E.; Alfred Horace Comfort; Frank Noel Trinder.

*Flying Officers to be Flight-Lieutenants:* Douglas Arthur William Sugden; Norman Warneford Law; Edward Alfred Burridge; Sidney Raymond Lawrence Poole; Christopher William Henry Moller.

### Accountant Branch.

*Flight-Lieutenants to be Squadron Leaders:* Percival Hay, M.C.; Walter Rodgers Westcombe.

*Flying Officers to be Flight-Lieutenants:* Stanley Wedgewood Hill; Reginald William Collinson.

### Medical Branch.

*Air Commodore to be Air Vice-Marshal:* John McIntyre, M.C., M.B., B.Ch.

*Squadron Leaders to be Wing Commanders:* John Rothwell, M.B., Ch.B.; Eric William Craig, M.C., M.B., B.Ch.

### Princess Mary's Royal Air Force Nursing Service.

*Sister to be Acting Senior Sister:* Miss Mary Euphemia Robertson Edwards.

London Gazette, June 23, 1931.

### General Duties Branch

Bernard Cyril Pocock is granted a short-service commn. as Pilot Officer on probation with effect from and with seniority of June 1. Flying Officer Frank William Foster, D.F.C., D.S.M., is promoted to rank of Flt.-Lieut. (June 19); Group Captain Charles Raymond Strathern Bradley, O.B.E., is placed on half-pay list, scale "A" (June 22); Wing Commander Eric Bentley Beauman is placed on half-pay list, scale "B" (June 19); The short-service commn. of Pilot Officer on probation Stanley John Cecil Stephens is terminated on cessation of duty (June 17).

### Accountant Branch

The following Pilot Officers on probation are confirmed in rank and promoted to rank of Flying Officer (June 2): William John Reginald Cann, Robert Francis Fleming, Percival Griffiths.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

*Squadron Leaders:* J. H. Green, to H.Q., R.A.F., Middle East, Cairo; 13.6.31. S. T. Freeman, M.B.E., to R.A.F. Reception Depot, West Drayton; 11.6.31. H. M. K. Brown, to No. 35 Sqdn., Bircham Newton; 20.6.31.

*Flight Lieutenants:* L. R. W. Tillard, to R.A.F. Depot, Uxbridge; 9.5.31. J. Cottle, M.B.E., D.F.C., to No. 6 Sqdn., Ismailia; 3.6.31. J. J. Lloyd-Williams, M.C., to Station H.Q., Amman; 31.5.31. J. D. Breakey, D.F.C., to R.A.F. Base, Singapore; 16.5.31. C. E. Barraclough, to H.Q., R.A.F., Middle East, Cairo; 23.5.31. R. M. Davy, to R.A.F. Depot, Aboukir; 30.5.31. E. H. M. David, to No. 10 Group H.Q., Lee-on-Solent; 17.6.31.

*Flying Officers:* C. H. Noble, to H.Q., R.A.F., Middle East, Cairo; 27.5.31. N. X. Sheldrick, to H.Q., R.A.F., Transjordan and Palestine, Palestine; 27.5.31. P. C. Fair, to R.A.F. Base, Gosport; 18.6.31. R. L. Bennet, to Elect. and Wireless School, Cranwell; 17.6.31. H. R. Collins, to R.A.F. Practice Camp, Catfoss; 11.5.31. E. H. Bellairs, to H.Q., Fighting Area, Uxbridge; 16.4.31.

*Pilot Officers:* H. J. L. Hawkins, to No. 70 Sqdn., Hinaidi; 15.5.31. C. P. Villiers, to No. 216 Sqdn., Heliopolis; 26.5.31. The undermentioned are all

### Medical Branch

Edward Kenneth Pritchard, M.R.C.S., L.R.C.P., is granted a temp. commn. as Flying Officer with effect from and with seniority of May 14. The short-service commn. of Flt.-Lieut. Andrew Sheridan Burns, MB., Ch.B., is antedated to May 6, 1930. Flying Officer William James Cumming, M.B., Ch.B., relinquishes his short-service commn. on account of ill-health (June 12).

### RESERVE OF AIR FORCE OFFICERS

#### General Duties Branch

Squadron Leader Cecil Hubert Ralli Johnston relinquishes his commn. on completion of service (May 8); Flying Officer Francis Augustine Smith, A.F.C., relinquishes his commn. on completion of service (May 1).

### AUXILIARY AIR FORCE

#### Medical Branch

No. 601 (COUNTY OF LONDON) (BOMBER) SQUADRON.—Terence Edward Cawthorne, F.R.C.S., L.R.C.P., to be Flying Officer (May 1).

posted to No. 3 Flying Training Sch., Grantham, with effect from 8.6.31:—G. Burdick, I. C. Bird, R. H. Preller, W. J. Hickey, and E. B. Waddy.

### Stores Branch

*Flying Officer* E. E. Copper, to No. 14 Sqdn., Amman, Palestine; 26.5.31.

### Accountant Branch

*Flying Officer* J. MacL. Murray, to No. 216 Sqdn., Heliopolis; 25.5.31. D. C. Stone, to R.A.F. Depot, Uxbridge; 28.5.31.

### Medical Branch

*Squadron Leaders:* W. G. L. Wambeck, to R.A.F. Depot, Uxbridge; 30.6.31. W. E. Barnes, to R.A.F. Hospital, Aden; 13.4.31.

*Flight Lieutenant* F. P. Schofield, to Princess Mary's R.A.F. Hospital, Halton; 29.6.31.

*Flying Officer* A. H. Barzilay, to No. 8 Sqdn., Aden; 13.4.31.

### NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty:—*Lieuts. (F/O., R.A.F.).*—H. A. Trall, to *Erebus*; July 20. D. M. L. Neame, to *St. Vincent*; July 27.

### "Ab Initio" Flying Training Courses

The undermentioned officer and airman pilots have been awarded special assessments, as shown hereunder, on completion of a course of *ab initio* training at No. 5 Flying Training School. *Distinguished Passes:* 365806 Sergeant Webb, G.C., 365318 Sergeant Scragg, C., Pilot Officer H. S. Burke, 364837 Sergeant Holman, L.S.

### Memorial Window in Risalpur Garrison Church.

It is proposed to erect a memorial window in the garrison church at Risalpur, to the memory of those officers and airmen who have lost their lives while serving with units stationed at Risalpur. The central window above the altar has been selected, and the cost will be approximately £140. More than half the amount has been subscribed by officers and airmen at present serving at Risalpur, and a guarantee has been given that the remainder will be raised

from other sources within 18 months. It is believed that a considerable number of officers and airmen, who have served at Risalpur at different times, will wish to subscribe towards this memorial, and sums, however small, will be gratefully received and acknowledged. Subscriptions should be sent to Flight Lieutenant Strang Graham, M.C., R.A.F. Station, Manston, who is acting as treasurer for subscriptions in this country.

### Bayonet Fighting

In the bayonet fighting championships at Olympia on June 10, Uxbridge station won the R.A.F. championship by defeating Lee-on-Solent in the final bout.

In the inter-Services championship, the Army, represented by the Artists Rifles, beat the Royal Marines, while the Royal Navy beat the Royal Air Force. The final bout was won by the Army.



## AIR POST STAMPS

By DOUGLAS ARMSTRONG

## More "Zeppelin" Stamps

The aerial excursions of the *Graf Zeppelin* continue to provide frequent additions to the world's air stamps. Quite an extensive collection might, in fact, be formed entirely of stamps and cachets connected with the many mail-carrying flights of the giant dirigible. Her latest trip to Vaduz, capital of the pocket principality of Liechtenstein on June 10 was productive of two very striking stamps designed by the Viennese artist, H. Kosel, depicting the airship passing over Alpine glaciers, in either direction, and duly inscribed "Zeppelin Post," in denominations 1 franc olive-grey and 2 francs grey-blue. Of the former 30,000 copies were printed in photogravure for use on post-cards, and of the latter 25,000 for franking letters transmitted by the special mail back to Friedrichshafen.

In connection with the proposed flight to Iceland and back, on or about July 1, three of the contemporary postage stamps of that country have been overprinted "Zeppelin 1931" in two lines of black type, to the tune of 30,000 sets. They are:—30 aur, red and green; 1 kroner, blue and deep brown; and 2 kroner, olive-brown and green.

For the purpose of the spectacular Polar expedition, when it is hoped to establish contact with the Wilkins-Emsworth venture in the submarine *Nautilus*, commencing about the end of July, special stamps are projected by both Germany and Russia. In the former instance the three existing Zeppelin vignettes will be re-issued with the addition of the inscription "Nordpolfahrt 1931," after the manner of the Pan-American series of last year, the 1 mark being required for post-cards conveyed as far as Leningrad only, the 2 mark for cards and the 4 mark for letters carried on the round trip. (Incidentally the original Zeppelin mail stamps of 1928 are to be withdrawn from currency on June 30 and the remaining stock destroyed.)

There are rumours also of an impending issue of Zeppelin stamps by the Austrian Post Office when the *Graf Zeppelin* flies to Vienna and back on or about July 12.

## Australian Air Mails

The first official air mail flight between Tasmania and the Australian mainland was carried out in either direction on May 1, when special cachets, but not stamps, were employed in the form of large circles composed of concentric lines with appropriate inscriptions and enclosing an outline map of Tasmania in the centre, the whole struck in violet ink.

First flight covers are a recognised feature of aerophilately, but the provision of souvenir envelopes in connection with a second flight is somewhat of a novelty. This was done, however, in connection with the second Australia—England air mail flight which left Melbourne on May 16 last, the covers in question being buff tinted with a map of the route printed on them in red. In view of the smaller mail carried they are likely to be scarcer than those of the inaugural flight.

The Kingsford-Smith World Flight stamps are reported to be completely obsolete, notwithstanding that a total of 20 million copies of the 2d., two million of the 3d. and 200,000 of the 6d. (Air Mail) values were printed and issued. It is understood, however, that a 6d. air mail stamp of a definitive character will follow shortly.

## Glen Kidston's Mail

It does not seem to be generally known that the late Commander Glen Kidston carried a small private mail upon his record-breaking flight from London to the Cape in March—April last. Twenty-four letters only were included in souvenir envelopes autographed by the pilots, and each one bears stamps of Great Britain, Kenya and the Union of South Africa, postmarked respectively at Salisbury (March 30), Kisumu (April 3) and Cape Town (April 6). Although their status is quite unofficial, they constitute interesting mementoes of this notable flight and its ill-fated hero.

## Brazilian Semi-officials

New semi-official air post vignettes have lately been taken into use by the Varig organisation, which now controls the inland air mail lines in Brazil. Surface printed by the Globe Library Press at Porto Alegre, in an effective design by E. Zeuner, incorporating the Icarus device of the *Viacao Aerea Rio Grando* and inscribed at the foot "Servicio Postal Aereo No Brazil," they comprise ten denominations, viz.: 50 reis, dark brown on buff (30,000); 350 reis, red (60,000); 500 reis, light on dark blue (20,000);

700 reis, red on yellow (40,000); 1,000 reis, claret on rose (16,000); 1,050 reis, deep green on buff (25,000); 1,400 reis, red-brown on yellow (25,000); 1,500 dark green on light green (16,000); 2,000 reis, violet on rose (10,000); and 10,000 reis, black (8,000). Figures in parenthesis represent the initial printing.

## New Air Stamps from Chile

The reorganisation of the inland air service in Chile under the auspices of the *Linea Aerea Nacional* on May 1 was attended by the introduction of a new series of official air mail stamps for internal use only, embracing six values lithographed by the *Telares de Especies* at Santiago de Chile in designs showing a Condor watching the flight of an aeroplane from a peak of the Andes, a postal plane passing over the cordillera and arriving at the air port of Los Corrillos. The values, colours and numbers printed of these stamps are as follow:—5 centavos, yellow-green (1,950,000); 10 centavos, yellow-brown (100,000); 20 centavos, crimson (100,000); 50 centavos, sepia (200,000); 50 centavos, blue (30,000); 1 peso, purple (50,000); 2 pesos, grey-blue (14,500), and 5 pesos, rose (500,000).

Ordinary postage stamps overprinted with the figure of a Condor and inscription "Correo Aereo" will continue to be employed for correspondence sent out of the country by air.

## IN PARLIAMENT

## Airship Equipment, Karachi

MAJOR POLE, on June 8, asked the Secretary of State for India the total cost incurred by the Government of India in the erection of the mooring mast and other ground equipment in preparation for the flight of the R.101 at Karachi; what is the annual cost of the upkeep of the mast and other equipment; and whether he will give information concerning the attitude of the Government of India towards the future maintenance of the mast and equipment, in view of the recent statement by His Majesty's Government in regard to their future airship policy?

MR. BERN: The original estimate of the cost of construction of the mooring tower was £55,000. The figure of actual cost is not yet available, but I have heard that the estimate has been somewhat exceeded. The annual cost of maintaining the station, which is charged to the Air Ministry vote, is £3,600. The Government of India have been informed of the recent decision of His Majesty's Government regarding future airship policy, but I have not yet received their views as to future policy in India.

## Imperial Air Routes and India

MR. MONTAGUE, on June 24, in reply to Capt. MacDonald, said: I am unaware that the Indian Government have placed obstacles in the way of flight over Indian territory. In regard to air transport services, however, I understand it would be contrary to their policy to subsidise any company other than an Indian company with rupee capital and Indian personnel. The Air Ministry is fully alive to the importance of continuous development of air routes throughout the Empire, and the policy of the Department is directed towards this end.

## AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

## APPLIED FOR IN 1929

Published July 2, 1931

39,908. SIR J. B. HENDERSON and A. L. PERHAM. Apparatus for controlling anti-aircraft guns. (349,989.)

## APPLIED FOR IN 1930

Published July 2, 1931

7,379. W. S. EATON. Radio-controlled guide for use in aircraft landing. (350,013.)

7,940. ECLIPSE AVIATION CORPORATION. Engine-starting mechanism. (350,043.)

8,006. G. MACHRAY. Aeroplanes. (350,047.)

19,517. C. H. LUNDHOLM AKT. Parachutes. (350,265.)

23,574. W. W. TRIGGS (Cesomoravska-Kolben-Danek Co., Ltd.). Lighting-plants for airport landing-places. (350,319.)

25,310. L. LAUBENDER. Four-stroke Diesel engines. (350,327.)

25,611. J. PINTSCH AKT.-GES. Air-traffic beacon lights. (350,331.)

## APPLIED FOR IN 1931

Published July 2, 1931

15,174. W. E. GRAY. Air brakes for aeroplanes. (350,028.)

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